Kit Components

Product code	Description
N9331012	**Method 505 kit**

Components:

N9331000	Reformulated Organohalide Pesticides Mix for Method 505
N9331001	Toxaphene
N9331002	Chlordane
N9331003	STD Aroclor 1016
N9331004	STD Aroclor 1221
N9331005	Aroclor 1232
N9331006	Aroclor 1242
N9331007	Aroclor 1248
N9331008	Aroclor 1254
N9331009	Aroclor 1260
N9331010	Aroclor 1262
N9331011	Aroclor 1268

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1 Identification

· **Product identifier**

· **Trade name: Reformulated Organohalide Pesticides Mix for Method 505**
· **Article number** N9331000
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

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2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Carc. 2 H351 Suspected of causing cancer.

Eye Irrit. 2A H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
acetone
atrazine (ISO)
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.

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H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H336 May cause drowsiness or dizziness.

· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

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· **vPvB:** *Not applicable.*

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3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
67-64-1 Acetone
· **Identification number(s)**
· **EC number:** *200-662-2*
· **Chemical characterization: Mixtures**
· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

· **Hazardous components:**			
67-64-1	*acetone*	*Flam. Liq. 2, H225* *Eye Irrit. 2A, H319; STOT SE 3, H336*	*99.7365%*
1912-24-9	*atrazine (ISO)*	*STOT RE 2, H373* *Skin Sens. 1, H317*	*0.125%*
122-34-9	*simazine (ISO)*	*Carc. 2, H351*	*0.125%*

· **Additional Components**			
15972-60-8	*alachlor (ISO)*	*Carc. 2, H351* *Acute Tox. 4, H302; Skin Sens. 1, H317*	*0.005%*
72-43-5	*methoxychlor*		*0.0025%*
5103-73-1	*cis-Nonachlor*		*0.0005%*
60-57-1	*dieldrin (ISO)*	*Acute Tox. 3, H301; Acute Tox. 1, H310* *Carc. 2, H351; STOT RE 1, H372*	*0.0005%*
72-20-8	*endrin (ISO)*	*Acute Tox. 2, H300; Acute Tox. 3, H311*	*0.0005%*
5103-74-2	*gamma-Chlordane*		*0.0005%*
58-89-9	*γ -HCH or γ -BHC*	*Acute Tox. 3, H301* *Carc. 2, H351; STOT RE 2, H373* *Acute Tox. 4, H312; Acute Tox. 4, H332* *Lact., H362*	*0.0005%*
76-44-8	*heptachlor (ISO)*	*Acute Tox. 3, H301; Acute Tox. 3, H311* *Carc. 2, H351; STOT RE 2, H373*	*0.0005%*
1024-57-3	*heptachlor epoxide*	*Acute Tox. 3, H301* *Carc. 2, H351; STOT RE 2, H373*	*0.0005%*
118-74-1	*hexachlorobenzene*	*Carc. 1B, H350; STOT RE 1, H372*	*0.0005%*
77-47-4	*hexachlorocyclopentadiene*	*Acute Tox. 3, H311; Acute Tox. 2, H330* *Skin Corr. 1B, H314* *Acute Tox. 4, H302*	*0.0005%*
5103-71-9	*alpha-Chlordane*		*0.0005%*
309-00-2	*aldrin (ISO)*	*Acute Tox. 3, H301; Acute Tox. 3, H311* *Carc. 2, H351; STOT RE 1, H372*	*0.0005%*
39765-80-5	*trans-Nonachlor*		*0.0005%*

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4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

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5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
Dilute with plenty of water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
67-64-1	acetone	200 ppm
72-43-5	methoxychlor	30 mg/m³
60-57-1	dieldrin (ISO)	0.3 mg/m³
72-20-8	endrin (ISO)	1.8 mg/m³
58-89-9	γ -HCH or γ -BHC	9.1 mg/m³

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76-44-8	heptachlor (ISO)	0.15 mg/m³
1024-57-3	heptachlor epoxide	0.15 mg/m³
118-74-1	hexachlorobenzene	0.006 mg/m³
77-47-4	hexachlorocyclopentadiene	0.03 ppm
309-00-2	aldrin (ISO)	0.91 mg/m³

· **PAC-2:**

67-64-1	acetone	3200* ppm
72-43-5	methoxychlor	150 mg/m³
60-57-1	dieldrin (ISO)	6.8 mg/m³
72-20-8	endrin (ISO)	20 mg/m³
58-89-9	γ -HCH or γ -BHC	100 mg/m³
76-44-8	heptachlor (ISO)	14 mg/m³
1024-57-3	heptachlor epoxide	0.5 mg/m³
118-74-1	hexachlorobenzene	14 mg/m³
77-47-4	hexachlorocyclopentadiene	0.55 ppm
309-00-2	aldrin (ISO)	10 mg/m³

· **PAC-3:**

67-64-1	acetone	5700* ppm
72-43-5	methoxychlor	4,500 mg/m³
60-57-1	dieldrin (ISO)	450 mg/m³
72-20-8	endrin (ISO)	2,000 mg/m³
58-89-9	γ -HCH or γ -BHC	1,000 mg/m³
76-44-8	heptachlor (ISO)	700 mg/m³
1024-57-3	heptachlor epoxide	3 mg/m³
118-74-1	hexachlorobenzene	91 mg/m³
77-47-4	hexachlorocyclopentadiene	1 ppm
309-00-2	aldrin (ISO)	100 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Store receptacle in a well ventilated area.
Keep receptacle tightly sealed.

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Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** *No further relevant information available.*

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** *No further data; see item 7.*

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

67-64-1 acetone	
PEL	Long-term value: 2400 mg/m³, 1000 ppm
REL	Long-term value: 590 mg/m³, 250 ppm
TLV	Short-term value: 1187 mg/m³, 500 ppm Long-term value: 594 mg/m³, 250 ppm BEI
122-34-9 simazine (ISO)	
TLV	Long-term value: 0.5* mg/m³ *inhalable fraction

· **Ingredients with biological limit values:**	
67-64-1 acetone	
BEI	50 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)

· **Additional information:** *The lists that were valid during the creation were used as basis.*

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Breathing equipment:** *Not required.*
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*94.7 °C (202.5 °F)*
Boiling point/Boiling range:	*55 °C (131 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*465 °C (869 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*2.6 Vol %*
Upper:	*13 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*233 hPa (174.8 mm Hg)*
· **Density at 20 °C (68 °F):**	*1.41 g/cm³ (11.76645 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*

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· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	99.7 %
VOC content:	99.74 %
Solids content:	0.3 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
67-64-1 acetone		
Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)
15972-60-8 alachlor (ISO)		
Oral	LD50	1,200 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Irritating effect.
· **Sensitization:** Sensitization possible through skin contact.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
1912-24-9	atrazine (ISO)	3

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122-34-9	simazine (ISO)	3
72-43-5	methoxychlor	3
60-57-1	dieldrin (ISO)	3
72-20-8	endrin (ISO)	3
58-89-9	γ -HCH or γ -BHC	2B
76-44-8	heptachlor (ISO)	2B
1024-57-3	heptachlor epoxide	2B
118-74-1	hexachlorobenzene	2B
309-00-2	aldrin (ISO)	3

· **NTP (National Toxicology Program)**

58-89-9	γ -HCH or γ -BHC	R
118-74-1	hexachlorobenzene	R

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

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13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1993
· **UN proper shipping name**	
· **DOT**	Flammable liquids, n.o.s. (Acetone)
· **ADR**	1993 Flammable liquids, n.o.s., special provision 640D (Acetone)
· **IMDG, IATA**	FLAMMABLE LIQUID, N.O.S. (ACETONE)
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3
· **ADR**	
· **Class**	3 (F1) Flammable liquids
· **Label**	3
· **IMDG, IATA**	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-E
· **Stowage Category**	B
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

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· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1993 FLAMMABLE LIQUIDS, N.O.S., SPECIAL PROVISION 640D (ACETONE), 3, II

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

67-64-1	acetone	Flam. Liq. 2, H225 Eye Irrit. 2A, H319; STOT SE 3, H336	99.7365%
1912-24-9	atrazine (ISO)	STOT RE 2, H373 Skin Sens. 1, H317	0.125%
122-34-9	simazine (ISO)	Carc. 2, H351	0.125%

· **Sara**

· **Section 355 (extremely hazardous substances):**

72-20-8	endrin (ISO)
58-89-9	γ -HCH or γ -BHC
77-47-4	hexachlorocyclopentadiene
309-00-2	aldrin (ISO)

· **Section 313 (Specific toxic chemical listings):**

1912-24-9	atrazine (ISO)
122-34-9	simazine (ISO)
15972-60-8	alachlor (ISO)
72-43-5	methoxychlor
58-89-9	γ -HCH or γ -BHC
76-44-8	heptachlor (ISO)
118-74-1	hexachlorobenzene
77-47-4	hexachlorocyclopentadiene
309-00-2	aldrin (ISO)

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· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

67-64-1	acetone
1912-24-9	atrazine (ISO)
122-34-9	simazine (ISO)
58-89-9	γ -HCH or γ -BHC
118-74-1	hexachlorobenzene
77-47-4	hexachlorocyclopentadiene

· **TSCA new (21st Century Act) (Substances not listed)**	
1912-24-9	atrazine (ISO)
122-34-9	simazine (ISO)

· **Proposition 65**

· **Chemicals known to cause cancer:**	
15972-60-8	alachlor (ISO)
60-57-1	dieldrin (ISO)
58-89-9	γ -HCH or γ -BHC
76-44-8	heptachlor (ISO)
1024-57-3	heptachlor epoxide
118-74-1	hexachlorobenzene
309-00-2	aldrin (ISO)

· **Chemicals known to cause reproductive toxicity for females:**	
1912-24-9	atrazine (ISO)
122-34-9	simazine (ISO)

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**	
1912-24-9	atrazine (ISO)
122-34-9	simazine (ISO)
72-20-8	endrin (ISO)
76-44-8	heptachlor (ISO)
118-74-1	hexachlorobenzene

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**		
67-64-1	acetone	I
72-43-5	methoxychlor	D
60-57-1	dieldrin (ISO)	B2
72-20-8	endrin (ISO)	D
76-44-8	heptachlor (ISO)	B2
1024-57-3	heptachlor epoxide	B2
118-74-1	hexachlorobenzene	B2

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77-47-4	hexachlorocyclopentadiene	E, NL
309-00-2	aldrin (ISO)	B2

· **TLV (Threshold Limit Value established by ACGIH)**

67-64-1	acetone	A4
1912-24-9	atrazine (ISO)	A4
15972-60-8	alachlor (ISO)	A3
72-43-5	methoxychlor	A4
60-57-1	dieldrin (ISO)	(A4)
72-20-8	endrin (ISO)	A4
58-89-9	γ -HCH or γ -BHC	A3
76-44-8	heptachlor (ISO)	A3
1024-57-3	heptachlor epoxide	A3
118-74-1	hexachlorobenzene	A3
77-47-4	hexachlorocyclopentadiene	A4
309-00-2	aldrin (ISO)	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

72-43-5	methoxychlor
60-57-1	dieldrin (ISO)
76-44-8	heptachlor (ISO)
1024-57-3	heptachlor epoxide
309-00-2	aldrin (ISO)

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** Environmental, Health and Safety
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488

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Trade name: Reformulated Organohalide Pesticides Mix for Method 505

(Contd. of page 13)

· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
· **** Data compared to the previous version altered.***

acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

*
1 Identification

· **Product identifier**

· **Trade name: Toxaphene**
· **Article number** N9331001
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

(Contd. on page 2)

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Trade name: Toxaphene

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H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

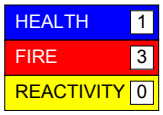
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Toxaphene

(Contd. of page 2)

*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%

· **Additional Components**			
8001-35-2	Toxaphene	Acute Tox. 3, H301 Carc. 2, H351 Acute Tox. 4, H312; Skin Irrit. 2, H315; STOT SE 3, H335	0.02%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Contd. on page 4)

(Contd. of page 3)

Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
8001-35-2	Toxaphene	1 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
8001-35-2	Toxaphene	20 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
8001-35-2	Toxaphene	200 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** *No special precautions are necessary if used correctly.*
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** *Store in a cool location.*
· **Information about storage in one common storage facility:** *Not required.*
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** *No further relevant information available.*

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** *No further data; see item 7.*

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

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Trade name: Toxaphene

(Contd. of page 4)

· **Ingredients with biological limit values:**

110-54-3 n-hexane

BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles or safety glasses

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Liquid
Color:	Transparent

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Trade name: Toxaphene

(Contd. of page 5)

· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-95 °C (-139 °F)
Boiling point/Boiling range:	69 °C (156.2 °F)
· **Flash point:**	< 0 °C (<32 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	240 °C (464 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	1.2 Vol %
Upper:	7.4 Vol %
· **Vapor pressure at 20 °C (68 °F):**	160 hPa (120 mm Hg)
· **Density at 20 °C (68 °F):**	0.66 g/cm³ (5.5077 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	0.1 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	100.0 %
VOC content:	99.98 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.

(Contd. on page 7)

(Contd. of page 6)

· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
8001-35-2	Toxaphene	2B

· **NTP (National Toxicology Program)**		
8001-35-2	Toxaphene	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

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Trade name: Toxaphene

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· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

*

14 Transport information

· ***UN-Number***
· ***DOT, ADR, IMDG, IATA*** *UN1993*

· ***UN proper shipping name***
· ***DOT*** *Flammable liquids, n.o.s. (Hexanes)*
· ***ADR*** *1993 Flammable liquids, n.o.s., special provision 640D (Hexanes), ENVIRONMENTALLY HAZARDOUS*
· ***IMDG*** *FLAMMABLE LIQUID, N.O.S. (HEXANES), MARINE POLLUTANT*
· ***IATA*** *FLAMMABLE LIQUID, N.O.S. (HEXANES)*

· ***Transport hazard class(es)***

· ***DOT***

· ***Class*** *3 Flammable liquids*
· ***Label*** *3*

· ***ADR***

· ***Class*** *3 (F1) Flammable liquids*
· ***Label*** *3*

· ***IMDG***

· ***Class*** *3 Flammable liquids*
· ***Label*** *3*

· ***IATA***

· ***Class*** *3 Flammable liquids*

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Trade name: Toxaphene

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· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: Toxaphene, n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-E
· **Stowage Category**	B
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1993 FLAMMABLE LIQUIDS, N.O.S., SPECIAL PROVISION 640D (HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%
8001-35-2	Toxaphene	Acute Tox. 3, H301 Carc. 2, H351 Acute Tox. 4, H312; Skin Irrit. 2, H315; STOT SE 3, H335	0.02%

· **Sara**

· **Section 355 (extremely hazardous substances):**

8001-35-2	Toxaphene

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Trade name: Toxaphene

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· **Section 313 (Specific toxic chemical listings):**
All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

8001-35-2	Toxaphene

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II
8001-35-2	Toxaphene	B2

· **TLV (Threshold Limit Value established by ACGIH)**

8001-35-2	Toxaphene	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

8001-35-2	Toxaphene

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** Environmental, Health and Safety

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Trade name: Toxaphene

(Contd. of page 10)

· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488

· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1

· **** Data compared to the previous version altered.***

acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

*
1 Identification

· **Product identifier**

· **Trade name: Chlordane**
· **Article number** N9331002
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Carc. 2 H351 Suspected of causing cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.

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Trade name: Chlordane

(Contd. of page 1)

H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

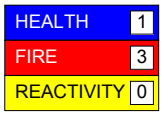
· **Precautionary statements**

P201	*Obtain special instructions before use.*
P202	*Do not handle until all safety precautions have been read and understood.*
P210	*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
P240	*Ground/bond container and receiving equipment.*
P241	*Use explosion-proof electrical/ventilating/lighting/equipment.*
P242	*Use only non-sparking tools.*
P243	*Take precautionary measures against static discharge.*
P260	*Do not breathe dust/fume/gas/mist/vapors/spray.*
P264	*Wash thoroughly after handling.*
P271	*Use only outdoors or in a well-ventilated area.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P303+P361+P353	*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P308+P313	*IF exposed or concerned: Get medical advice/attention.*
P312	*Call a poison center/doctor if you feel unwell.*
P321	*Specific treatment (see on this label).*
P314	*Get medical advice/attention if you feel unwell.*
P362+P364	*Take off contaminated clothing and wash it before reuse.*
P332+P313	*If skin irritation occurs: Get medical advice/attention.*
P370+P378	*In case of fire: Use for extinction: CO2, powder or water spray.*
P403+P233	*Store in a well-ventilated place. Keep container tightly closed.*
P403+P235	*Store in a well-ventilated place. Keep cool.*
P405	*Store locked up.*
P501	*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*

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Trade name: Chlordane

(Contd. of page 2)

· **vPvB:** *Not applicable.*

*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** *203-777-6*
· **Index number:** *601-037-00-0*
· **Chemical characterization: Mixtures**
· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

· **Hazardous components:**			
110-54-3	*n-hexane*	*Flam. Liq. 2, H225* *Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304* *Skin Irrit. 2, H315; STOT SE 3, H336*	*99.9%*
57-74-9	*chlordane (ISO)*	*Carc. 2, H351* *Acute Tox. 4, H302; Acute Tox. 4, H312*	*0.1%*

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Do not leave affected persons unattended.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** *In case of unconsciousness place patient stably in side position for transportation.*
· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
· **After eye contact:** *Rinse opened eye for several minutes under running water.*
· **After swallowing:** *If symptoms persist consult doctor.*
· **Most important symptoms and effects, both acute and delayed** *No further relevant information available.*
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** *Water with full jet*
· **Special hazards arising from the substance or mixture** *No further relevant information available.*
· **Advice for firefighters**
· **Protective equipment:** *No special measures required.*

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Trade name: Chlordane

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
57-74-9	chlordane (ISO)	4.5 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
57-74-9	chlordane (ISO)	50 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
57-74-9	chlordane (ISO)	500 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** *No special precautions are necessary if used correctly.*
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** *Store in a cool location.*
· **Information about storage in one common storage facility:** *Not required.*
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** *No further relevant information available.*

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Trade name: Chlordane

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** *No further data; see item 7.*

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**

110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** *The lists that were valid during the creation were used as basis.*

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: Chlordane

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· **Eye protection:**

Tightly sealed goggles or safety glasses

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66019 g/cm³ (5.50929 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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· **Solvent content:**
Organic solvents: 99.9 %
VOC content: 99.90 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
57-74-9	chlordane (ISO)	2B

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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· ***Additional ecological information:***
· ***General notes:***
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:***
Dispose of container and materials in accordance with local, regional and national regulations.

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

*
14 Transport information

· ***UN-Number***	
· ***DOT, ADR, IMDG, IATA***	*UN1993*
· ***UN proper shipping name***	
· ***DOT***	*Flammable liquids, n.o.s. (Hexanes)*
· ***ADR***	*1993 Flammable liquids, n.o.s., special provision 640D (Hexanes), ENVIRONMENTALLY HAZARDOUS*
· ***IMDG***	*FLAMMABLE LIQUID, N.O.S. (HEXANES, chlordane (ISO)), MARINE POLLUTANT*
· ***IATA***	*FLAMMABLE LIQUID, N.O.S. (HEXANES)*
· ***Transport hazard class(es)***	
· ***DOT***	

· ***Class***	*3 Flammable liquids*
· ***Label***	*3*
· ***ADR***	

· ***Class***	*3 (F1) Flammable liquids*

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: chlordane (ISO), n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-E
· **Stowage Category**	B
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUIDS, N.O.S., SPECIAL PROVISION 640D (HEXANES), 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
57-74-9	chlordane (ISO)	Carc. 2, H351 Acute Tox. 4, H302; Acute Tox. 4, H312	0.1%

· **Sara**

· **Section 355 (extremely hazardous substances):**

57-74-9	chlordane (ISO)

· **Section 313 (Specific toxic chemical listings):**

All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **TSCA new (21st Century Act) (Substances not listed)**

57-74-9	chlordane (ISO)

· **Proposition 65**

· **Chemicals known to cause cancer:**

57-74-9	chlordane (ISO)

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II
57-74-9	chlordane (ISO)	B2

· **TLV (Threshold Limit Value established by ACGIH)**

57-74-9	chlordane (ISO)	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

57-74-9	chlordane (ISO)

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Trade name: Chlordane

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· ***National regulations:***

· ***Information about limitation of use:***
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· ***Water hazard class:*** *Water hazard class 2 (Self-assessment): hazardous for water.*
· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Department issuing SDS:*** *Environmental, Health and Safety*
· ***Contact:***
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· ***Abbreviations and acronyms:***
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· **** Data compared to the previous version altered.***

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*
1 Identification

· **Product identifier**

· **Trade name: STD Aroclor 1016**
· **Article number** N9331003
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Carc. 1B H350 May cause cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
AROCLOR 1016
· **Hazard statements**
H225 Highly flammable liquid and vapor.

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H315 Causes skin irritation.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

P201	*Obtain special instructions before use.*
P202	*Do not handle until all safety precautions have been read and understood.*
P210	*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
P240	*Ground/bond container and receiving equipment.*
P241	*Use explosion-proof electrical/ventilating/lighting/equipment.*
P242	*Use only non-sparking tools.*
P243	*Take precautionary measures against static discharge.*
P260	*Do not breathe dust/fume/gas/mist/vapors/spray.*
P264	*Wash thoroughly after handling.*
P271	*Use only outdoors or in a well-ventilated area.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P303+P361+P353	*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P308+P313	*IF exposed or concerned: Get medical advice/attention.*
P312	*Call a poison center/doctor if you feel unwell.*
P321	*Specific treatment (see on this label).*
P314	*Get medical advice/attention if you feel unwell.*
P362+P364	*Take off contaminated clothing and wash it before reuse.*
P332+P313	*If skin irritation occurs: Get medical advice/attention.*
P370+P378	*In case of fire: Use for extinction: CO2, powder or water spray.*
P403+P233	*Store in a well-ventilated place. Keep container tightly closed.*
P403+P235	*Store in a well-ventilated place. Keep cool.*
P405	*Store locked up.*
P501	*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

*Health = *1*
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*

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· **vPvB:** *Not applicable.*

*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** *203-777-6*
· **Index number:** *601-037-00-0*
· **Chemical characterization: Mixtures**
· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

· **Hazardous components:**			
110-54-3	*n-hexane*	*Flam. Liq. 2, H225* *Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304* *Skin Irrit. 2, H315; STOT SE 3, H336*	*99.9%*
12674-11-2	*AROCLOR 1016*	*Carc. 1B, H350*	*0.1%*

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** *In case of unconsciousness place patient stably in side position for transportation.*
· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
· **After eye contact:** *Rinse opened eye for several minutes under running water.*
· **After swallowing:** *If symptoms persist consult doctor.*
· **Most important symptoms and effects, both acute and delayed** *No further relevant information available.*
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** *Water with full jet*
· **Special hazards arising from the substance or mixture** *No further relevant information available.*
· **Advice for firefighters**
· **Protective equipment:** *No special measures required.*

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Trade name: STD Aroclor 1016

(Contd. of page 3)

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
12674-11-2	AROCLOR 1016	5.6 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
12674-11-2	AROCLOR 1016	62 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
12674-11-2	AROCLOR 1016	460 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Store in cool, dry place in tightly closed receptacles.
Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

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*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: STD Aroclor 1016

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· **Eye protection:**

Tightly sealed goggles or safety glasses

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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Trade name: STD Aroclor 1016

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· **Solvent content:**
Organic solvents: 99.9 %
VOC content: 99.90 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**		
12674-11-2	AROCLOR 1016	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*
· **Other adverse effects** *No further relevant information available.*

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** *Disposal must be made according to official regulations.*

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	*UN1208*
· **UN proper shipping name**	
· **DOT**	*Hexanes solution*
· **ADR**	*1208 Hexanes solution, ENVIRONMENTALLY HAZARDOUS*
· **IMDG**	*HEXANES solution, MARINE POLLUTANT*
· **IATA**	*HEXANES solution*
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	*3 Flammable liquids*
· **Label**	*3*
· **ADR**	

· **Class**	*3 (F1) Flammable liquids*

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1208 HEXANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
12674-11-2	AROCLOR 1016	Carc. 1B, H350	0.1%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **TSCA new (21st Century Act) (Substances not listed)**

12674-11-2	AROCLOR 1016

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**
Carcinogenic hazardous material group III (dangerous).

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· ***Information about limitation of use:***
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· ***Water hazard class:*** *Water hazard class 2 (Self-assessment): hazardous for water.*
· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Department issuing SDS:*** *Environmental, Health and Safety*
· ***Contact:***
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· ***Abbreviations and acronyms:***
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Carc. 1B: Carcinogenicity – Category 1B
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· **** Data compared to the previous version altered.***

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*
1 Identification

· **Product identifier**

· **Trade name: STD Aroclor 1221**
· **Article number** N9331004
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

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H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

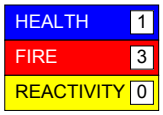
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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Trade name: STD Aroclor 1221

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3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** 203-777-6
· **Index number:** 601-037-00-0
· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%

· **Additional Components**		
11104-28-2	4-CHLOROPHENYL PHENYL ETHER	0.1%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self contained breathing apparatous for fire fighting if necessary

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.

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· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
11104-28-2	4-CHLOROPHENYL PHENYL ETHER	12 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
11104-28-2	4-CHLOROPHENYL PHENYL ETHER	130 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
11104-28-2	4-CHLOROPHENYL PHENYL ETHER	790 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Transparent
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-95 °C (-139 °F)
Boiling point/Boiling range:	69 °C (156.2 °F)
· **Flash point:**	< 0 °C (<32 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	240 °C (464 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	1.2 Vol %
Upper:	7.4 Vol %
· **Vapor pressure at 20 °C (68 °F):**	160 hPa (120 mm Hg)
· **Density at 20 °C (68 °F):**	0.66 g/cm³ (5.5077 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	0.1 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.

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Trade name: STD Aroclor 1221

(Contd. of page 6)

· **Solvent content:**
Organic solvents: 99.9 %
VOC content: 99.90 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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Trade name: STD Aroclor 1221

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*
· **Other adverse effects** *No further relevant information available.*

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** *Disposal must be made according to official regulations.*

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	*UN1208*
· **UN proper shipping name**	
· **DOT**	*Hexanes solution*
· **ADR**	*1208 Hexanes solution, ENVIRONMENTALLY HAZARDOUS*
· **IMDG**	*HEXANES solution, MARINE POLLUTANT*
· **IATA**	*HEXANES solution*
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	*3 Flammable liquids*
· **Label**	*3*
· **ADR**	

· **Class**	*3 (F1) Flammable liquids*

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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Trade name: STD Aroclor 1221

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· **UN "Model Regulation":** UN 1208 HEXANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
11104-28-2	4-CHLOROPHENYL PHENYL ETHER	0.1%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

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Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: STD Aroclor 1221

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· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** *Environmental, Health and Safety*
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· *** Data compared to the previous version altered.**

acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1232**
· **Article number** N9331005
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

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acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1232

(Contd. of page 1)

H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

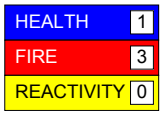
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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Trade name: Aroclor 1232

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*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%

· **Additional Components**		
11141-16-5	Aroclor 1232	0.1%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

(Contd. on page 4)

(Contd. of page 3)

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
11141-16-5	Aroclor 1232	13 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
11141-16-5	Aroclor 1232	150 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
11141-16-5	Aroclor 1232	890 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Use solvent-proof equipment.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

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Trade name: Aroclor 1232

(Contd. of page 4)

· **Ingredients with biological limit values:**

110-54-3 n-hexane

BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles or safety glasses

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Liquid
Color:	Transparent

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Trade name: Aroclor 1232

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· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-95 °C (-139 °F)
Boiling point/Boiling range:	69 °C (156.2 °F)
· **Flash point:**	< 0 °C (<32 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	240 °C (464 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	1.2 Vol %
Upper:	7.4 Vol %
· **Vapor pressure at 20 °C (68 °F):**	160 hPa (120 mm Hg)
· **Density at 20 °C (68 °F):**	0.66 g/cm³ (5.5077 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	0.1 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	99.9 %
VOC content:	99.90 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.

(Contd. on page 7)

Trade name: Aroclor 1232

(Contd. of page 6)

· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

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Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1232

(Contd. of page 7)

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

*

14 Transport information

· ***UN-Number***
· ***DOT, ADR, IMDG, IATA*** *UN1208*

· ***UN proper shipping name***
· ***DOT*** *Hexanes solution*
· ***ADR*** *1208 Hexanes solution, ENVIRONMENTALLY HAZARDOUS*
· ***IMDG*** *HEXANES solution, MARINE POLLUTANT*
· ***IATA*** *HEXANES solution*

· ***Transport hazard class(es)***

· ***DOT***

· ***Class*** *3 Flammable liquids*
· ***Label*** *3*

· ***ADR***

· ***Class*** *3 (F1) Flammable liquids*
· ***Label*** *3*

· ***IMDG***

· ***Class*** *3 Flammable liquids*
· ***Label*** *3*

· ***IATA***

· ***Class*** *3 Flammable liquids*
· ***Label*** *3*

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Trade name: Aroclor 1232

(Contd. of page 8)

· **Packing group**	
· **DOT, ADR, IMDG, IATA**	*II*
· **Environmental hazards:**	*Product contains environmentally hazardous substances: n-hexane*
· **Marine pollutant:**	*Yes*
	Symbol (fish and tree)
· **Special marking (ADR):**	*Symbol (fish and tree)*
· **Special precautions for user**	*Warning: Flammable liquids*
· **Danger code (Kemler):**	*33*
· **EMS Number:**	*F-E,S-D*
· **Stowage Category**	*E*
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	*Not applicable.*
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	*On passenger aircraft/rail: 5 L* *On cargo aircraft only: 60 L*
· **ADR**	
· **Excepted quantities (EQ)**	*Code: E2* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 500 ml*
· **IMDG**	
· **Limited quantities (LQ)**	*1L*
· **Excepted quantities (EQ)**	*Code: E2* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 500 ml*
· **UN "Model Regulation":**	*UN 1208 HEXANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS*

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	*n-hexane*	*Flam. Liq. 2, H225* *Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304* *Skin Irrit. 2, H315; STOT SE 3, H336*	*99.9%*
11141-16-5	*Aroclor 1232*		*0.1%*

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	*n-hexane*

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Trade name: Aroclor 1232

(Contd. of page 9)

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** Environmental, Health and Safety
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

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acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1232

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ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1

· **** Data compared to the previous version altered.***

acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1242**
· **Article number** N9331006
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Carc. 1B H350 May cause cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
Chlorodiphenyl (42% chlorine)
· **Hazard statements**
H225 Highly flammable liquid and vapor.

(Contd. on page 2)

acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1242

(Contd. of page 1)

H315 Causes skin irritation.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

P201	*Obtain special instructions before use.*
P202	*Do not handle until all safety precautions have been read and understood.*
P210	*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
P240	*Ground/bond container and receiving equipment.*
P241	*Use explosion-proof electrical/ventilating/lighting/equipment.*
P242	*Use only non-sparking tools.*
P243	*Take precautionary measures against static discharge.*
P260	*Do not breathe dust/fume/gas/mist/vapors/spray.*
P264	*Wash thoroughly after handling.*
P271	*Use only outdoors or in a well-ventilated area.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P303+P361+P353	*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P308+P313	*IF exposed or concerned: Get medical advice/attention.*
P312	*Call a poison center/doctor if you feel unwell.*
P321	*Specific treatment (see on this label).*
P314	*Get medical advice/attention if you feel unwell.*
P362+P364	*Take off contaminated clothing and wash it before reuse.*
P332+P313	*If skin irritation occurs: Get medical advice/attention.*
P370+P378	*In case of fire: Use for extinction: CO2, powder or water spray.*
P403+P233	*Store in a well-ventilated place. Keep container tightly closed.*
P403+P235	*Store in a well-ventilated place. Keep cool.*
P405	*Store locked up.*
P501	*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

*Health = *1*
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*

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· **vPvB:** *Not applicable.*

*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

· **Hazardous components:**		
110-54-3	n-hexane Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
53469-21-9	Chlorodiphenyl (42% chlorine) Carc. 1B, H350	0.1%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** *In case of unconsciousness place patient stably in side position for transportation.*
· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
· **After eye contact:** *Rinse opened eye for several minutes under running water.*
· **After swallowing:** *If symptoms persist consult doctor.*
· **Most important symptoms and effects, both acute and delayed** *No further relevant information available.*
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** *Water with full jet*
· **Special hazards arising from the substance or mixture** *No further relevant information available.*
· **Advice for firefighters**
· **Protective equipment:** *No special measures required.*

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.

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· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
53469-21-9	Chlorodiphenyl (42% chlorine)	3 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
53469-21-9	Chlorodiphenyl (42% chlorine)	140 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
53469-21-9	Chlorodiphenyl (42% chlorine)	840 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Use solvent-proof equipment.
Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm

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REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI
53469-21-9 Chlorodiphenyl (42% chlorine)	
PEL	Long-term value: 1 mg/m³ Skin
REL	Long-term value: 0.001 mg/m³ See Pocket Guide App. A
TLV	Long-term value: 1 mg/m³ Skin

· **Ingredients with biological limit values:**

110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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· **Solvent content:**
Organic solvents: 99.9 %
VOC content: 99.90 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
53469-21-9	Chlorodiphenyl (42% chlorine)	2A

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*
· **Other adverse effects** *No further relevant information available.*

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** *Disposal must be made according to official regulations.*

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	*UN1208*
· **UN proper shipping name**	
· **DOT**	*Hexanes*
· **ADR**	*1208 Hexanes, ENVIRONMENTALLY HAZARDOUS*
· **IMDG**	*HEXANES, MARINE POLLUTANT*
· **IATA**	*HEXANES*
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	*3 Flammable liquids*
· **Label**	*3*
· **ADR**	

· **Class**	*3 (F1) Flammable liquids*

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1208 HEXANES, 3, II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
53469-21-9	Chlorodiphenyl (42% chlorine) Carc. 1B, H350	0.1%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **TSCA new (21st Century Act) (Substances not listed)**

53469-21-9	Chlorodiphenyl (42% chlorine)

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II
53469-21-9	Chlorodiphenyl (42% chlorine)	B2

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

53469-21-9	Chlorodiphenyl (42% chlorine)

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· ***National regulations:***
· ***Additional classification according to Decree on Hazardous Materials:***
Carcinogenic hazardous material group III (dangerous).

· ***Information about limitation of use:***
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· ***Water hazard class:*** *Water hazard class 2 (Self-assessment): hazardous for water.*
· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Department issuing SDS:*** *Environmental, Health and Safety*
· ***Contact:***
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· ***Abbreviations and acronyms:***
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Carc. 1B: Carcinogenicity – Category 1B
Repr. 2: Reproductive toxicity – Category 2

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STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1

· **** Data compared to the previous version altered.***

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*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1248**
· **Article number** N9331007
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

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H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

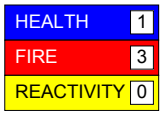
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** 203-777-6
· **Index number:** 601-037-00-0
· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%

· **Additional Components**		
12672-29-6	AROCLOR 1248	0.1%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.

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· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
12672-29-6	AROCLOR 1248	6.6 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
12672-29-6	AROCLOR 1248	72 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
12672-29-6	AROCLOR 1248	2,200 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Use solvent-proof equipment.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

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Trade name: Aroclor 1248

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles or safety glasses

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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· **Solvent content:**
Organic solvents: 99.9 %
VOC content: 99.90 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1208
· **UN proper shipping name**	
· **DOT**	Hexanes solution
· **ADR**	1208 Hexanes solution, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	HEXANES solution, MARINE POLLUTANT
· **IATA**	HEXANES solution
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids
· **Label**	3
· **ADR**	

· **Class**	3 (F1) Flammable liquids

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1208 HEXANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
12672-29-6	AROCLOR 1248		0.1%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

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· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

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16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** *Environmental, Health and Safety*
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· *** Data compared to the previous version altered.**

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*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1254**
· **Article number** N9331008
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Carc. 1B H350 May cause cancer.
Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
Chlorodiphenyl (54% chlorine)
· **Hazard statements**
H225 Highly flammable liquid and vapor.

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H315 Causes skin irritation.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

P201	*Obtain special instructions before use.*
P202	*Do not handle until all safety precautions have been read and understood.*
P210	*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
P240	*Ground/bond container and receiving equipment.*
P241	*Use explosion-proof electrical/ventilating/lighting/equipment.*
P242	*Use only non-sparking tools.*
P243	*Take precautionary measures against static discharge.*
P260	*Do not breathe dust/fume/gas/mist/vapors/spray.*
P264	*Wash thoroughly after handling.*
P271	*Use only outdoors or in a well-ventilated area.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*
P303+P361+P353	*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.*
P304+P340	*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
P308+P313	*IF exposed or concerned: Get medical advice/attention.*
P312	*Call a poison center/doctor if you feel unwell.*
P321	*Specific treatment (see on this label).*
P314	*Get medical advice/attention if you feel unwell.*
P362+P364	*Take off contaminated clothing and wash it before reuse.*
P332+P313	*If skin irritation occurs: Get medical advice/attention.*
P370+P378	*In case of fire: Use for extinction: CO2, powder or water spray.*
P403+P233	*Store in a well-ventilated place. Keep container tightly closed.*
P403+P235	*Store in a well-ventilated place. Keep cool.*
P405	*Store locked up.*
P501	*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

*Health = *1*
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*

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· **vPvB:** *Not applicable.*

*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** *203-777-6*
· **Index number:** *601-037-00-0*
· **Chemical characterization: Mixtures**
· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

· **Hazardous components:**		
110-54-3	*n-hexane* *Flam. Liq. 2, H225* *Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304* *Skin Irrit. 2, H315; STOT SE 3, H336*	*99.9%*
11097-69-1	*Chlorodiphenyl (54% chlorine)* *Carc. 1B, H350*	*0.1%*

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4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** *In case of unconsciousness place patient stably in side position for transportation.*
· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
· **After eye contact:** *Rinse opened eye for several minutes under running water.*
· **After swallowing:** *If symptoms persist consult doctor.*
· **Most important symptoms and effects, both acute and delayed** *No further relevant information available.*
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** *Water with full jet*
· **Special hazards arising from the substance or mixture** *No further relevant information available.*
· **Advice for firefighters**
· **Protective equipment:** *No special measures required.*

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
11097-69-1	Chlorodiphenyl (54% chlorine)	1.5 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
11097-69-1	Chlorodiphenyl (54% chlorine)	68 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
11097-69-1	Chlorodiphenyl (54% chlorine)	200 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Use solvent-proof equipment.
Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** *No further data; see item 7.*

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI
11097-69-1 Chlorodiphenyl (54% chlorine)	
PEL	Long-term value: 0.5 mg/m³ Skin
REL	Long-term value: 0.001 mg/m³ See Pocket Guide App. A
TLV	Long-term value: 0.5 mg/m³ Skin

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** *The lists that were valid during the creation were used as basis.*

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles or safety glasses

*
9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*

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· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*
· **Solvent content:**	
Organic solvents:	*99.9 %*
VOC content:	*99.90 %*
· **Other information**	*No further relevant information available.*

10 Stability and reactivity

· **Reactivity** *No further relevant information available.*
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
· **Possibility of hazardous reactions** *No dangerous reactions known.*
· **Conditions to avoid** *No further relevant information available.*
· **Incompatible materials:** *No further relevant information available.*
· **Hazardous decomposition products:** *No dangerous decomposition products known.*

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** *Irritant to skin and mucous membranes.*
· **on the eye:** *No irritating effect.*
· **Sensitization:** *No sensitizing effects known.*
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
11097-69-1	*Chlorodiphenyl (54% chlorine)*	*2A*

· **NTP (National Toxicology Program)**		
11097-69-1	*Chlorodiphenyl (54% chlorine)*	*R*

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1208
· **UN proper shipping name**	
· **DOT**	Hexanes
· **ADR**	1208 Hexanes, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	HEXANES, MARINE POLLUTANT
· **IATA**	HEXANES
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids

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· **Label**	3
· **ADR**	
	
· **Class**	3 (F1) Flammable liquids
· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes
	Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml

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Trade name: Aroclor 1254

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· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1208 HEXANES, 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.9%
11097-69-1	Chlorodiphenyl (54% chlorine) Carc. 1B, H350	0.1%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **TSCA new (21st Century Act) (Substances not listed)**

11097-69-1	Chlorodiphenyl (54% chlorine)

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II
11097-69-1	Chlorodiphenyl (54% chlorine)	B2

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acc. to OSHA HCS

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Trade name: Aroclor 1254

(Contd. of page 10)

· **TLV (Threshold Limit Value established by ACGIH)**		
11097-69-1	Chlorodiphenyl (54% chlorine)	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**	
11097-69-1	Chlorodiphenyl (54% chlorine)

· **National regulations:**
· **Additional classification according to Decree on Hazardous Materials:**
Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** Environmental, Health and Safety
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit

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Trade name: Aroclor 1254

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REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Carc. 1B: Carcinogenicity – Category 1B
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1

· **** Data compared to the previous version altered.***

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Printing date 07/19/2018 *Review date 07/19/2018*

*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1260**
· **Article number** N9331009
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

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Trade name: Aroclor 1260

(Contd. of page 1)

H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

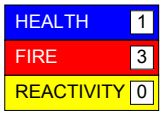
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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Trade name: Aroclor 1260

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*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** 203-777-6
· **Index number:** 601-037-00-0
· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%

· **Additional Components**			
11096-82-5	aroclor 1260	Carc. 1B, H350	0.02%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.

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Trade name: Aroclor 1260

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· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
11096-82-5	aroclor 1260	0.41 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
11096-82-5	aroclor 1260	4.5 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
11096-82-5	aroclor 1260	260 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Use solvent-proof equipment.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

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Trade name: Aroclor 1260

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: Aroclor 1260

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· **Eye protection:**

Tightly sealed goggles or safety glasses

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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Trade name: Aroclor 1260

(Contd. of page 6)

· **Solvent content:**
Organic solvents: 100.0 %
VOC content: 99.98 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**		
11096-82-5	aroclor 1260	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1260

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1208
· **UN proper shipping name**	
· **DOT**	Hexanes solution
· **ADR**	1208 Hexanes solution, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	HEXANES solution, MARINE POLLUTANT
· **IATA**	HEXANES solution
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids
· **Label**	3
· **ADR**	

· **Class**	3 (F1) Flammable liquids

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Trade name: Aroclor 1260

(Contd. of page 8)

· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

(Contd. on page 10)

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Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1260

(Contd. of page 9)

· **UN "Model Regulation":** UN 1208 HEXANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%
11096-82-5	aroclor 1260	Carc. 1B, H350	0.02%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

11096-82-5	aroclor 1260

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

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Trade name: Aroclor 1260

(Contd. of page 10)

· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

*
16 Other information

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· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· *** Data compared to the previous version altered.**

acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1262**
· **Article number** N9331010
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

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Trade name: Aroclor 1262

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H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

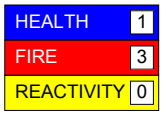
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** 203-777-6
· **Index number:** 601-037-00-0
· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%

· **Additional Components**		
37324-23-5	AROCLOR 1262	0.02%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.

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Trade name: Aroclor 1262

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· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
37324-23-5	AROCLOR 1262	34 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
37324-23-5	AROCLOR 1262	370 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
37324-23-5	AROCLOR 1262	2,200 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Use solvent-proof equipment.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

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Trade name: Aroclor 1262

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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Trade name: Aroclor 1262

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· **Solvent content:**
Organic solvents: 100.0 %
VOC content: 99.98 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

*
14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1208
· **UN proper shipping name**	
· **DOT**	Hexanes solution
· **ADR**	1208 Hexanes solution, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	HEXANES solution, MARINE POLLUTANT
· **IATA**	HEXANES solution
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids
· **Label**	3
· **ADR**	

· **Class**	3 (F1) Flammable liquids

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1208 HEXANES SOLUTION, 3, II, ENVIRONMENTALLY HAZARDOUS

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%
37324-23-5	AROCLOR 1262		0.02%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

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Trade name: Aroclor 1262

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· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

*
16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** *Environmental, Health and Safety*
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· *** Data compared to the previous version altered.**

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*
1 Identification

· **Product identifier**

· **Trade name: Aroclor 1268**
· **Article number** N9331011
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

PerkinElmer, Inc.
710 Bridgeport Avenue
Shelton, Connecticut 06484 USA
CustomerCareUS@perkinelmer.com
203-925-4600
· **Emergency telephone number:**
CHEMTREC (within US) 800-424-9300
CHEMTREC (from outside US) +1 703-527-3887 (call collect)
CHEMTREC (within AU) +(61)-290372994

*
2 Hazard(s) identification

· **Classification of the substance or mixture**

Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Skin Irrit. 2 H315 Causes skin irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **Label elements**
· **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms** GHS02, GHS07, GHS08
· **Signal word** Danger

· **Hazard-determining components of labeling:**
n-hexane
· **Hazard statements**
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H361 Suspected of damaging fertility or the unborn child.

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Trade name: Aroclor 1268

(Contd. of page 1)

H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

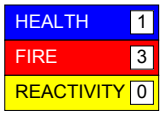
· **Precautionary statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P370+P378	In case of fire: Use for extinction: CO2, powder or water spray.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 3
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 1
Fire = 3
Reactivity = 0

· **Other hazards**
The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1268

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*
3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
110-54-3 n-hexane
· **Identification number(s)**
· **EC number:** 203-777-6
· **Index number:** 601-037-00-0
· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Hazardous components:**			
110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%

· **Additional Components**		
11100-14-4	AROCLOR 1268	0.02%

*
4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.

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Trade name: Aroclor 1268

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· **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Prevent seepage into sewage system, workpits and cellars.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
110-54-3	n-hexane	260 ppm
11100-14-4	AROCLOR 1268	33 mg/m³

· **PAC-2:**		
110-54-3	n-hexane	2900* ppm
11100-14-4	AROCLOR 1268	360 mg/m³

· **PAC-3:**		
110-54-3	n-hexane	8600** ppm
11100-14-4	AROCLOR 1268	2,200 mg/m³

*
7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Use solvent-proof equipment.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **Specific end use(s)** No further relevant information available.

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

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acc. to OSHA HCS

Printing date 07/19/2018 *Review date 07/19/2018*

Trade name: Aroclor 1268

(Contd. of page 4)

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
110-54-3 n-hexane	
PEL	Long-term value: 1800 mg/m³, 500 ppm
REL	Long-term value: 180 mg/m³, 50 ppm
TLV	Long-term value: 176 mg/m³, 50 ppm Skin; BEI

· **Ingredients with biological limit values:**	
110-54-3 n-hexane	
BEI	0.4 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 2.5-Hexanedione without hydrolysis

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles or safety glasses

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*Transparent*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*-95 °C (-139 °F)*
Boiling point/Boiling range:	*69 °C (156.2 °F)*
· **Flash point:**	*< 0 °C (<32 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*240 °C (464 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*1.2 Vol %*
Upper:	*7.4 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*160 hPa (120 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.66 g/cm³ (5.5077 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	*0.1 g/l*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not determined.*
Kinematic:	*Not determined.*

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· **Solvent content:**
Organic solvents: 100.0 %
VOC content: 99.98 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Dispose of container and materials in accordance with local, regional and national regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

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14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1208
· **UN proper shipping name**	
· **DOT**	Hexanes
· **ADR**	1208 Hexanes, ENVIRONMENTALLY HAZARDOUS
· **IMDG**	HEXANES, MARINE POLLUTANT
· **IATA**	HEXANES
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids
· **Label**	3
· **ADR**	

· **Class**	3 (F1) Flammable liquids

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· **Label**	3
· **IMDG**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Product contains environmentally hazardous substances: n-hexane
· **Marine pollutant:**	Yes Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	E
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· **Remarks:**	Special marking with the symbol (fish and tree).
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":** UN 1208 HEXANES, 3, II, ENVIRONMENTALLY HAZARDOUS

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

110-54-3	n-hexane	Flam. Liq. 2, H225 Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; STOT SE 3, H336	99.98%
11100-14-4	AROCLOR 1268		0.02%

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

110-54-3	n-hexane

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

110-54-3	n-hexane

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

110-54-3	n-hexane

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

110-54-3	n-hexane	II

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

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· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

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16 Other information

Disclaimer
The information provided in this Material Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. PerkinElmer shall not be held liable for any damage resulting from handling or from contact with the product.

· **Department issuing SDS:** *Environmental, Health and Safety*
· **Contact:**
Within the USA: 1-(800)-762-4000
Outside the USA: 1-(203)-712-8488
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Asp. Tox. 1: Aspiration hazard – Category 1
· *** Data compared to the previous version altered.**