

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/27/2019

Version Number 3

Reviewed on 03/23/2019

1 Identification

- **Product identifier**
- **Trade name:** PAH Standard (1X1 mL)
- **Part number:** PM-055-1
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA
- **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

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



GHS08 Health hazard

Carc. 1B H350 May cause cancer.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
dichloromethane

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benzo[a]pyrene

dibenz[a,h]anthracene

· Hazard statements

Highly flammable liquid and vapor.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

May cause cancer.

May cause respiratory irritation.

May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

 In case of fire: Use for extinction: CO₂, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Store locked up.

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

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- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

* 3 Composition/information on ingredients

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

- **Dangerous components:**

75-09-2	dichloromethane	98.718%
50-32-8	benzo[a]pyrene	0.0754%
53-70-3	dibenz[a,h]anthracene	0.0754%

* 4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
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. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for 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**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.

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- **Environmental precautions:** Do not allow to enter sewers/ surface or ground 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:

75-09-2	dichloromethane	200 ppm
50-32-8	benzo[a]pyrene	0.6 mg/m ³
218-01-9	chrysene	0.6 mg/m ³
193-39-5	indeno[1,2,3-cd]pyrene	1.2 mg/m ³
85-01-8	phenanthrene	5.4 mg/m ³
129-00-0	pyrene	0.15 mg/m ³
205-99-2	benz[e]acephenanthrylene	0.12 mg/m ³
191-24-2	benzo[ghi]perylene	30 mg/m ³
53-70-3	dibenz[a,h]anthracene	0.093 mg/m ³
206-44-0	fluoranthene	8.2 mg/m ³
86-73-7	fluorene	6.6 mg/m ³
91-20-3	naphthalene	15 ppm
83-32-9	acenaphthene	3.6 mg/m ³
208-96-8	acenaphthylene	10 mg/m ³
56-55-3	benz[a]anthracene	0.6 mg/m ³
120-12-7	anthracene	48 mg/m ³

· PAC-2:

75-09-2	dichloromethane	560 ppm
50-32-8	benzo[a]pyrene	120 mg/m ³
218-01-9	chrysene	12 mg/m ³
193-39-5	indeno[1,2,3-cd]pyrene	13 mg/m ³
85-01-8	phenanthrene	59 mg/m ³
129-00-0	pyrene	1.7 mg/m ³
205-99-2	benz[e]acephenanthrylene	1.3 mg/m ³
191-24-2	benzo[ghi]perylene	330 mg/m ³
53-70-3	dibenz[a,h]anthracene	1 mg/m ³
206-44-0	fluoranthene	90 mg/m ³
86-73-7	fluorene	72 mg/m ³
91-20-3	naphthalene	83 ppm
83-32-9	acenaphthene	40 mg/m ³
208-96-8	acenaphthylene	110 mg/m ³
56-55-3	benz[a]anthracene	120 mg/m ³

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120-12-7	anthracene	530 mg/m ³
· PAC-3:		
75-09-2	dichloromethane	6,900 ppm
50-32-8	benzo[a]pyrene	700 mg/m ³
218-01-9	chrysene	69 mg/m ³
193-39-5	indeno[1,2,3-cd]pyrene	79 mg/m ³
85-01-8	phenanthrene	360 mg/m ³
129-00-0	pyrene	110 mg/m ³
205-99-2	benz[e]acephenanthrylene	7.9 mg/m ³
191-24-2	benzo[ghi]perylene	2,000 mg/m ³
53-70-3	dibenz[a,h]anthracene	2.9 mg/m ³
206-44-0	fluoranthene	400 mg/m ³
86-73-7	fluorene	430 mg/m ³
91-20-3	naphthalene	500 ppm
83-32-9	acenaphthene	240 mg/m ³
208-96-8	acenaphthylene	660 mg/m ³
56-55-3	benz[a]anthracene	700 mg/m ³
120-12-7	anthracene	3,200 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
 Ensure good ventilation/exhaustion at the workplace.
 Open and handle receptacle with care.
 Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
 Keep respiratory protective device available.
- **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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· Control parameters
· Components with limit values that require monitoring at the workplace:
75-09-2 dichloromethane

PEL	Short-term value: 125 ppm Long-term value: 25 ppm see 29 CFR 1910.1052
REL	See Pocket Guide App. A
TLV	Long-term value: 174 mg/m ³ , 50 ppm BEI

50-32-8 benzo[a]pyrene

PEL	Long-term value: 0.2 mg/m ³ see Coal tar pitch volatiles
REL	Long-term value: 0.1 mg/m ³ Coal tar pitch volatile; Pocket Guide Apps. A+C
TLV	L; BEIp

· Ingredients with biological limit values:
75-09-2 dichloromethane

BEI	0.3 mg/L Medium: urine Time: end of shift Parameter: Dichloromethane (semi-quantitative)
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50-32-8 benzo[a]pyrene

BEI	- Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)
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· **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 eyes and skin.

· Breathing equipment:

When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

· Protection of hands:

Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

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- **Material of gloves**

- For normal use: nitrile rubber, 11-13 mil thickness

- For direct contact with the chemical: butyl rubber, 12-15 mil thickness

- **Penetration time of glove material**

- For normal use: nitrile rubber: 1 hour

- For direct contact with the chemical: butyl rubber: >4 hours

- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

- Form:** Fluid

- Color:** Colorless

- **Odor:** Aromatic

- **Odor threshold:** Not determined.

- **pH-value:** Not determined.

- **Change in condition**

- Melting point/Melting range:** -95.1 °C (-139.2 °F)

- Boiling point/Boiling range:** 40 °C (104 °F)

- **Flash point:** 2 °C (35.6 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 605 °C (1,121 °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:** 13 Vol %

- Upper:** 22 Vol %

- **Vapor pressure at 20 °C (68 °F):** 360 hPa (270 mm Hg)

- **Density at 20 °C (68 °F):** 1.3 g/cm³ (10.8485 lbs/gal)

- **Relative density** Not determined.

- **Vapor density** Not determined.

- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with**

- Water at 20 °C (68 °F):** 20 g/l

- **Partition coefficient (n-octanol/water):** Not determined.

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· Viscosity:	
Dynamic at 20 °C (68 °F):	0.43 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	98.7 %
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
Solids content:	1.3 %
· 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.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	1,621 mg/kg (rat)
Dermal	LD50	>2,026 mg/kg (rat)
Inhalative	LC50/4 h	89.1 mg/L (rat)

75-09-2 dichloromethane

Oral	LD50	1,600 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)
Inhalative	LC50/4 h	88 mg/L (rat)

129-00-0 pyrene

Oral	LD50	2,700 mg/kg (rat)
Inhalative	LC50/4 h	170 mg/L (rat)

208-96-8 acenaphthylene

Oral	LD50	1,760 mg/kg (mouse)
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- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritating effect.
 - **Sensitization:** No sensitizing effects known.
 - **Additional toxicological information:**
- The product shows the following dangers according to internally approved calculation methods for preparations:

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 Harmful
 Irritant

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· Carcinogenic categories
· IARC (International Agency for Research on Cancer)

75-09-2	dichloromethane	2A
50-32-8	benzo[a]pyrene	1
207-08-9	benzo[k]fluoranthene	2B
218-01-9	chrysene	2B
193-39-5	indeno[1,2,3-cd]pyrene	2B
85-01-8	phenanthrene	3
129-00-0	pyrene	3
205-99-2	benz[e]acephenanthrylene	2B
191-24-2	benzo[ghi]perylene	3
53-70-3	dibenz[a,h]anthracene	2A
206-44-0	fluoranthene	3
86-73-7	fluorene	3
91-20-3	naphthalene	2B
83-32-9	acenaphthene	3
191-07-1	coronene	3
56-55-3	benz[a]anthracene	2B
120-12-7	anthracene	3

· NTP (National Toxicology Program)

75-09-2	dichloromethane	R
50-32-8	benzo[a]pyrene	R
207-08-9	benzo[k]fluoranthene	R
218-01-9	chrysene	R
193-39-5	indeno[1,2,3-cd]pyrene	R
85-01-8	phenanthrene	R
129-00-0	pyrene	R
205-99-2	benz[e]acephenanthrylene	R
53-70-3	dibenz[a,h]anthracene	R
206-44-0	fluoranthene	R
86-73-7	fluorene	R
91-20-3	naphthalene	R
56-55-3	benz[a]anthracene	R
120-12-7	anthracene	R

· OSHA-Ca (Occupational Safety & Health Administration)

75-09-2	dichloromethane	
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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:**
 Water hazard class 3 (Self-assessment): extremely hazardous for water
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Danger to drinking water if even extremely 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:**
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

* 14 Transport information

- | | |
|---|-----------------------------------|
| · Not Regulated, De minimus Quantities | - |
| · UN-Number | |
| · DOT, IMDG, IATA | UN1593 |
| · UN proper shipping name | |
| · DOT | Dichloromethane |
| · IMDG | DICHLOROMETHANE, MARINE POLLUTANT |
| · IATA | DICHLOROMETHANE |
| · Transport hazard class(es) | |
| · DOT, IMDG | |
|   | |
| · Class | 6.1 Toxic substances |

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· Label	6.1
· IATA	
	
· Class	6.1 Toxic substances
· Label	6.1
· Packing group	
· DOT, IMDG, IATA	III
· Environmental hazards:	Product contains environmentally hazardous substances: anthracene, dibenz[a,h]anthracene
· Marine pollutant:	Yes (DOT) Symbol (fish and tree)
· Special precautions for user	Warning: Toxic substances
· Danger code (Kemler):	60
· EMS Number:	F-A,S-A
· Segregation groups	Liquid halogenated hydrocarbons
· 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: 60 L On cargo aircraft only: 220 L
· Remarks:	Special marking with the symbol (fish and tree).
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 1593 DICHLOROMETHANE, 6.1, III, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

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

· **Sara**

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

129-00-0	pyrene
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· **Section 313 (Specific toxic chemical listings):**

75-09-2	dichloromethane
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50-32-8	benzo[a]pyrene
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207-08-9	benzo[k]fluoranthene
218-01-9	chrysene
193-39-5	indeno[1,2,3-cd]pyrene
85-01-8	phenanthrene
205-99-2	benz[e]acephenanthrylene
191-24-2	benzo[ghi]perylene
53-70-3	dibenz[a,h]anthracene
206-44-0	fluoranthene
91-20-3	naphthalene
56-55-3	benz[a]anthracene
120-12-7	anthracene

· TSCA (Toxic Substances Control Act):

75-09-2	dichloromethane
50-32-8	benzo[a]pyrene
218-01-9	chrysene
193-39-5	indeno[1,2,3-cd]pyrene
85-01-8	phenanthrene
129-00-0	pyrene
53-70-3	dibenz[a,h]anthracene
206-44-0	fluoranthene
86-73-7	fluorene
91-20-3	naphthalene
83-32-9	acenaphthene
208-96-8	acenaphthylene
56-55-3	benz[a]anthracene
120-12-7	anthracene

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

53-70-3	dibenz[a,h]anthracene
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· Proposition 65
· Chemicals known to cause cancer:

75-09-2	dichloromethane
50-32-8	benzo[a]pyrene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene
193-39-5	indeno[1,2,3-cd]pyrene
205-99-2	benz[e]acephenanthrylene
53-70-3	dibenz[a,h]anthracene
91-20-3	naphthalene
56-55-3	benz[a]anthracene

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

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· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories
· EPA (Environmental Protection Agency)

75-09-2	dichloromethane	L
50-32-8	benzo[a]pyrene	CaH
207-08-9	benzo[k]fluoranthene	B2
218-01-9	chrysene	B2
193-39-5	indeno[1,2,3-cd]pyrene	B2
85-01-8	phenanthrene	D
129-00-0	pyrene	D
205-99-2	benz[e]acephenanthrylene	B2
191-24-2	benzo[ghi]perylene	D
53-70-3	dibenz[a,h]anthracene	B2
206-44-0	fluoranthene	D
86-73-7	fluorene	D
91-20-3	naphthalene	C, CBD
83-32-9	acenaphthene	A (oral)
208-96-8	acenaphthylene	D
56-55-3	benz[a]anthracene	B2
120-12-7	anthracene	D

· TLV (Threshold Limit Value established by ACGIH)

75-09-2	dichloromethane	A3
50-32-8	benzo[a]pyrene	A2
218-01-9	chrysene	A3
205-99-2	benz[e]acephenanthrylene	A2
91-20-3	naphthalene	A4
56-55-3	benz[a]anthracene	A2

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

75-09-2	dichloromethane
50-32-8	benzo[a]pyrene
218-01-9	chrysene

· 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 the hazardous carcinogenic materials contained in this preparation.

Exceptions can be made by the authorities in certain cases.

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· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**16 Other information**

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Date of preparation / last revision** 03/27/2019 / 2· **Abbreviations and acronyms:**

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

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 1B: Carcinogenicity – Category 1B

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.**