





SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** PEROXAN PO-49
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture**
Reaction initiator
For industrial use
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:** PERGAN GmbH
Hilfsstoffe für industrielle Prozesse
Schlavenhorst 71
D-46395 Bocholt
Tel: +49 2871 9902-0
Fax: +49 2871 9902-50
- **Further information obtainable from:** Environment protection / Security of labour
Qualified person: E-mail: msds@pergan.com
- **1.4 Emergency telephone number:** - Tel: +49 2871 9902-0

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**

Flam. Liq. 3	H226	Flammable liquid and vapour.
Org. Perox. E	H242	Heating may cause a fire.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Repr. 1B	H360F	May damage fertility.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
Aquatic Acute 1	H400	Very toxic to aquatic life.
Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms**

GHS02 GHS07 GHS08 GHS09
- **Signal word** Danger
- **Hazard-determining components of labelling:** tert-butyl 2-ethylperoxyhexanoate
Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated
- **Hazard statements**

H226 Flammable liquid and vapour.
H242 Heating may cause a fire.
H317 May cause an allergic skin reaction.
H360F May damage fertility.
H304 May be fatal if swallowed and enters airways.
H410 Very toxic to aquatic life with long lasting effects.
- **Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy metal compounds and amines).
P234 Keep only in original packaging.
P243 Take action to prevent static discharges.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P362+P364 Take off contaminated clothing and wash it before reuse.
P405 Store locked up.
P410 Protect from sunlight.
P411+P235 Store at temperatures not exceeding +30°C. Keep cool.
P420 Store separately.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Additional information:** Restricted to professional users.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.
- **vPvB:** The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures

· **Dangerous components:**

CAS: 93685-81-5 EINECS: 297-629-8 Reg-No.: 01-2119490725-29	Hydrocarbons, C4, 1,3-butadiene-free, polymd., triisobutylene fraction, hydrogenated Alternative CAS number: 13475-82-6 Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 4, H413	40-50%
CAS: 3006-82-4 EINECS: 221-110-7 Reg-No.: 01-2119498310-40	tert-butyl 2-ethylperoxyhexanoate Org. Perox. C, H242; Repr. 1B, H360F; Aquatic Acute 1, H400; Aquatic Chronic 2, H411; Skin Sens. 1, H317	40-50%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· **General information:**



Take care of personal protection for the first aider.

· **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.
Take affected persons into fresh air and keep quiet.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.
Immediately remove contaminated clothing.

· **After eye contact:**

Rinse opened eye for several minutes under running water.

· **After swallowing:**

If symptoms persist consult doctor.

· 4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

· 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media

- **Suitable extinguishing agents:** CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents:**

Water with full jet

· 5.2 Special hazards arising from the substance or mixture

Under certain fire conditions, traces of other toxic gases cannot be excluded.
Hydrocarbons, carbondioxide and -monoxid.

· 5.3 Advice for firefighters

· **Protective equipment:**

Do not inhale explosion gases or combustion gases.

· **Additional information**

Cool endangered receptacles with water spray.
Self-protection first!

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Keep away from ignition sources.
In case of further temperature should be cooled with waterspray from a safe distance.
Wear breathing apparatus with filter A during decomposition of materials.
Wear protective equipment. Keep unprotected persons away.

· 6.2 Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.



Do not allow to enter sewers/ surface or ground water.

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Safety data sheet
 according to Regulation (EC) No 1907/2006, Article 31

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- **6.3 Methods and material for containment and cleaning up:** Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Large quantities should be diluted with suitable desensitisation agent to a concentration below 10 % before disposal.
Soak up with absorbant material (e. g. Vermiculit) and dispose of in accordance with government regulations.
- **6.4 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.
In case of large spillage the environmental authority should be informed.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 - Keep away from heat and direct sunlight.
 - Open and handle receptacle with care.
 - Prevent formation of aerosols.
 - Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.
 - Do not refill residue into storage receptacles.
 - Restrict the quantity stored at the work place.
 - Before break and at the end of work hands should be thoroughly washed.
 - Only use tools made of suitable materials (e. g. polyethylene or stainless steel).
 - Keep away from dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
 - While using do not eat, drink or smoke.
 - Do not generate flames or sparks.
 - Keep product and emptied container away from heat and sources of ignition.
 - Avoid shock and friction.
 - Take precautionary measures against static discharges.
- **Information about fire - and explosion protection:**
 -  Do not smoke.
 - Protect from heat.
 - Protect against electrostatic charges.
 - Prevent impact and friction.
 - Use explosion-proof apparatus / fittings and spark-proof tools.
 - Fumes can combine with air to form an explosive mixture.
 -  Wear shoes with conductive soles.
 - Formation of flammable or explosive gas/air-mixtures is possible.
 -  Avoid open flames, sparks, direct sunlight and other sources of ignition.
 - Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:** Pay attention to the special requirements of your local authorities for storing dangerous goods.
- **Requirements to be met by storerooms and receptacles:**
 - Store only in the original receptacle.
 - Prevent any seepage into the ground.
 - Use only receptacles specifically permitted for this substance/product.
- **Information about storage in one common storage facility:**
 - Do not store or park organic peroxide together with heavy metal compounds and amines.
 - Store away from foodstuffs, drinks and feeding stuffs.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Protect from heat and direct sunlight.
 - Protect from contamination.
 - Storage in a collecting room is required.
- **Recommended storage temperature (To maintain quality):** max.: +15 °C
- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**

3006-82-4 tert-butyl 2-ethylperoxyhexanoate

Dermal	DNEL Longterm System	5.6 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm System	9.8 mg/m ³ (Worker)

· **PNECs**

3006-82-4 tert-butyl 2-ethylperoxyhexanoate

PNEC Marinewater sed	0.0622 mg/kg sed dw
PNEC Freshwater	0.002 mg/l (AF 50)
PNEC Freshwater sed	0.622 mg/kg sed dw
PNEC STP	0.64 mg/l (AF 100)
PNEC Marinewater	0 mg/l (AF 500)

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

· **8.2 Exposure controls**

· **Appropriate engineering controls**

No further data; see section 7.

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.
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 close or long term contact with the skin.
Do not eat, drink, smoke or sniff while working.
Use skin protection cream for skin protection.
Be sure to clean skin thoroughly after work and before breaks.
Not necessary if room is well-ventilated.

· **Respiratory protection:**



Use suitable respiratory device when it exceed exposure limit and when insufficiently ventilated.

Filter A2

· **Hand protection**

Only use chemical-protective gloves with CE-labelling of category III.



Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Protective gloves

· **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.

Butyl rubber, BR
Fluorocarbon rubber (Viton)
Nitrile rubber, NBR
Neoprene

· **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/face protection**



Tightly sealed goggles

· **Body protection:**



Protective work clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Colour:**

colourless - yellowish

· **Odour:**

Characteristic

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<ul style="list-style-type: none"> · Odour threshold: · Melting point/freezing point: · Boiling point or initial boiling point and boiling range · Flammability · Lower and upper explosion limit · Lower: · Upper: · Flash point: · Decomposition temperature: · pH · Viscosity: · Kinematic viscosity · Dynamic: · Solubility · water: · Partition coefficient n-octanol/water (log value) · Vapour pressure: · Density and/or relative density · Density: · Relative density · Vapour density 	<ul style="list-style-type: none"> Not determined. Not applicable. Not applicable. Not applicable. Not determined. Not determined. > SADT +40 °C (SADT) Not determined. Not determined. Not determined. Not determined. Not determined. Undetermined. not determined Not determined. Not determined. Not determined. Not determined. Not determined.
<ul style="list-style-type: none"> · 9.2 Other information · Appearance: · Form: · Important information on protection of health and environment, and on safety. · Ignition temperature: · Explosive properties: · Change in condition · Evaporation rate 	<ul style="list-style-type: none"> Fluid Product is not selfigniting. Product is not explosive. However, formation of explosive air/vapour mixtures are possible. Not determined.
<ul style="list-style-type: none"> · Information with regard to physical hazard classes · Explosives · Flammable gases · Aerosols · Oxidising gases · Gases under pressure · Flammable liquids · Flammable solids · Self-reactive substances and mixtures · Pyrophoric liquids · Pyrophoric solids · Self-heating substances and mixtures · Substances and mixtures, which emit flammable gases in contact with water · Oxidising liquids · Oxidising solids · Organic peroxides · Corrosive to metals · Desensitised explosives 	<ul style="list-style-type: none"> Void Void Void Void Void Void Flammable liquid and vapour. Void Void Void Void Void Void Void Void Void Void Void Void Heating may cause a fire. Void Void

SECTION 10: Stability and reactivity

<ul style="list-style-type: none"> · 10.1 Reactivity · 10.2 Chemical stability · Thermal decomposition / conditions to be avoided: · 10.3 Possibility of hazardous reactions · 10.4 Conditions to avoid 	<ul style="list-style-type: none"> No further relevant information available. SADT (Self Accelerating Decomposition Temperature) is the lowest temperature at which self accelerating decomposition may occur with substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be cause decomposition at and above the temperature. Contact with incompatible substances can cause decomposition at or below the SADT. No decomposition if used and stored according to specifications. To avoid thermal decomposition do not overheat. Self-accelerating decomposition at SADT. No further relevant information available.
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- **10.5 Incompatible materials:** Rapid decomposition by dirt, rust, chemicals in particular concentrated acids, alkalis and accelerators (e. g. heavy-metal compounds and amines).
- **10.6 Hazardous decomposition products:** Hydrocarbons, carbon dioxide and -monoxid.
No hazardous decomposition products if used and stored according to specifications.
- **Additional information:** Emergency procedures will vary depending on conditions. The customer should have an emergency response plan in place.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC50 values relevant for classification:**

93685-81-5 Hydrocarbons, C4, 1,3-butadiene-free, polyd., triisobutylene fraction, hydrogenated

Oral	LD50	>5,000 mg/kg (rattus)
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3006-82-4 tert-butyl 2-ethylperoxyhexanoate

Oral	LD50	>10,000 mg/kg (rattus)
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Dermal	LD50	14,142-20,000 mg/kg (rabbit)
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Inhalative	LC50 / 4h	42.2 mg/l (rattus)
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- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** May cause an allergic skin reaction.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** May damage fertility.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** May be fatal if swallowed and enters airways.

- **11.2 Information on other hazards**

- **Endocrine disrupting properties**

None of the ingredients is listed.

* SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

93685-81-5 Hydrocarbons, C4, 1,3-butadiene-free, polyd., triisobutylene fraction, hydrogenated

EC50 / 48h	>0.04 mg/l (daphnia)
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IC50 / 72h	>0.04 mg/l (algae)
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3006-82-4 tert-butyl 2-ethylperoxyhexanoate

EC50 / 72h	0.44 mg/l (alga (Süßwasser))
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LC50 / 96h	8.66 mg/l (poecilia reticulata)
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EC50 / 48h	7.5 mg/l (daphnia)
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- **12.2 Persistence and degradability**

- **Degree of elimination:**

- **Classification:**

93685-81-5 Hydrocarbons, C4, 1,3-butadiene-free, polyd., triisobutylene fraction, hydrogenated

Degradation	(Not readily biodegradable)
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3006-82-4 tert-butyl 2-ethylperoxyhexanoate

Degradation	(Readily biodegradable) (OECD 301 D)
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- **12.3 Bioaccumulative potential**

- **Partition coefficient: nOctanol/water: [Log Kow]**

3006-82-4	tert-butyl 2-ethylperoxyhexanoate	4,79 (20°C)
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- **12.4 Mobility in soil** No further relevant information available.

- **12.5 Results of PBT and vPvB assessment**

- **PBT:** The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.

- **vPvB:** The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH, annex XIII.

- **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

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· **12.7 Other adverse effects**



- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:** Toxic for aquatic organisms
Also poisonous for fish and plankton in water bodies.
Water hazard class 3 (German Regulation) (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.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

- **Recommendation**  After diluting with a suitable desensitisation agent to 10 %, the solution must be supplied to a special treatment (e. g. thermal utilization) under observance of all official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Waste disposal key:** Please contact your hazardous waste disposers to assign the right EWC-(European waste catalog)-number.
- **Uncleaned packaging:**
- **Recommendation:** This material and its container must be disposed of as hazardous waste.

SECTION 14: Transport information

· 14.1 UN number or ID number · ADR, IMDG	UN3117
· 14.2 UN proper shipping name · ADR · IMDG	UN3117 ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED (tert-BUTYLPEROXY-2-ETHYLHEXANOATE), ENVIRONMENTALLY HAZARDOUS ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED (tert-BUTYLPEROXY-2-ETHYLHEXANOATE), MARINE POLLUTANT
· 14.3 Transport hazard class(es) · ADR  · Class · Label	5.2 (P2) Organic peroxides. 5.2
· IMDG  · Class · Label	5.2 Organic peroxides. 5.2
· IATA · Class · Label	X X
· 14.4 Packing group · ADR, IMDG	Void
· 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADR):	Product contains environmentally hazardous substances: tert-BUTYLPEROXY-2-ETHYLHEXANOATE Symbol (fish and tree) Symbol (fish and tree)
· 14.6 Special precautions for user · Hazard identification number (Kemler code): · Stowage Category · Stowage Code · Segregation Code	Warning: Organic peroxides. - D SW1 Protected from sources of heat. SW3 Shall be transported under temperature control. SG35 Stow "separated from" SGG1-acids SG36 Stow "separated from" SGG18-alkalis.

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· 14.7 Maritime transport in bulk according to IMO instruments Not applicable.	
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· Transport category	1
· Tunnel restriction code	D
· RID / GGVSEB:	
	no admission
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· IATA	
· Remarks:	no admission
· Control temperature:	+30 °C
· Emergency temperature:	+35 °C

* SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Poisons Act**

· Regulated explosives precursors	None of the ingredients is listed.
· Regulated poisons	None of the ingredients is listed.
· Reportable explosives precursors	None of the ingredients is listed.
· Reportable poisons	None of the ingredients is listed.
· Directive 2012/18/EU	
· Qualifying quantity (tonnes) for the application of lower-tier requirements	50 t
· Qualifying quantity (tonnes) for the application of upper-tier requirements	200 t
· DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II	None of the ingredients is listed.
· Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))	None of the ingredients is listed.
· Annex II - REPORTABLE EXPLOSIVES PRECURSORS	None of the ingredients is listed.
· Regulation (EC) No 273/2004 on drug precursors	None of the ingredients is listed.
· Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors	None of the ingredients is listed.
· National regulations:	
· Other regulations, limitations and prohibitive regulations	
· Please note:	Take care of the respective local regulations.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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Safety data sheet
 according to Regulation (EC) No 1907/2006, Article 31

Printing date 18.06.2024

Version: 11 (replaces version 10)

Revision: 20.12.2022

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· Relevant phrases	H226 Flammable liquid and vapour. H242 Heating may cause a fire. H304 May be fatal if swallowed and enters airways. H317 May cause an allergic skin reaction. H360F May damage fertility. H400 Very toxic to aquatic life. H411 Toxic to aquatic life with long lasting effects. H413 May cause long lasting harmful effects to aquatic life.
· Department issuing SDS:	Environment protection / Security of labour
· Contact:	Tel: +49 2871 9902-0 E-mail: mail@pergan.com
· 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) ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods IATA: International Air Transport Association GHS: Globally Harmonised System of Classification and Labelling of Chemicals 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) DNEL: Derived No-Effect Level (UK REACH) PNEC: Predicted No-Effect Concentration (UK REACH) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative Flam. Liq. 3: Flammable liquids – Category 3 Org. Perox. C: Organic peroxides – Type C/D Org. Perox. E: Organic peroxides – Type E/F Skin Sens. 1: Skin sensitisation – Category 1 Repr. 1B: Reproductive toxicity – Category 1B Asp. Tox. 1: Aspiration hazard – Category 1 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1 Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2 Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4
· * Data compared to the previous version altered.	