

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name or designation of the mixture	Occlusionsspray
Registration number	-
Synonyms	None.
SDS number	5380
Product code	150855, 150840, 150800, 150805
Issue date	25-June-2015
Version number	1,0
Revision date	25-June-2015
Product use	Professional use

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Coating.
Uses advised against	Intraoral use

**1.3. Details of the supplier of the safety data sheet**

Company name	Dentaco GmbH & Co.KG
Address	Max-Keith-Str. 46 45136 Essen, Germany
Telephone number	+ 49 ( 0) 201/ 8098290
Fax	+ 49 (0) 201/ 80982999
Homepage	www.dentaco.de ; info@dentaco.de
E-mail	HSE@rle.de
1.4 Emergency telephone number	+ 49 ( 0) 201/ 8098290 (Mo. - Fr. 09:00 - 17:00)

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

**Classification according to Regulation (EC) No 1272/2008 as amended****Physical hazards**

Aerosols	Category 1	H222 - Extremely flammable aerosol. H229 - Pressurized container: May burst if heated.
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**Health hazards**

Specific target organ toxicity - single exposure	Category 3 narcotic effects	H336 - May cause drowsiness or dizziness.
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**Environmental hazards**

Hazardous to the aquatic environment, long-term aquatic hazard	Category 3	H412 - Harmful to aquatic life with long lasting effects.
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**2.2. Label elements****Label according to Regulation (EC) No. 1272/2008 as amended**

Contains: Pentane

**Hazard pictograms**

Signal word: Danger

**Hazard statements**

H222	Extremely flammable aerosol.
H229	Pressurized container: May burst if heated.

H336 May cause drowsiness or dizziness.  
H412 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P211 Do not spray on an open flame or other ignition source.  
P251 Do not pierce or burn, even after use.

##### Response

None.

##### Storage

P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

##### Disposal

None.

**Supplemental label information** None.

**2.3. Other hazards** The mixture contains no substance that fulfils the criteria of a PBT- or vPvB substance.

### **SECTION 3: Composition/information on ingredients**

#### 3.2. Mixtures

##### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Butane	50 - < 100	106-97-8 203-448-7	-	601-004-00-0	Note U, Note C
<b>Classification:</b>	Flam. Gas 1;H220, Press. Gas;H280				
Propane	10 - 25	74-98-6 200-827-9	-	601-003-00-5	Note U
<b>Classification:</b>	Flam. Gas 1;H220, Press. Gas;H280				
Isobutane	1 - 10	75-28-5 200-857-2	-	601-004-00-0	Note U, Note C
<b>Classification:</b>	Flam. Gas 1;H220, Press. Gas;H280				
Pentane	1 - < 10	109-66-0 203-692-4	-	601-006-00-1	#, Note C
<b>Classification:</b>	Flam. Liq. 2;H225, Asp. Tox. 1;H304, STOT SE 3;H336, Aquatic Chronic 2;H411				

List of abbreviations and symbols that may be used above:

#: This substance has been assigned Community workplace exposure limit(s).

Note: Regulation No. 1272/2008 - Annex VI

**Composition comments** The full text for all H-statements is displayed in section 16.

### **SECTION 4: First aid measures**

**General information** Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

#### 4.1. Description of first aid measures

**Inhalation** If symptoms develop move victim to fresh air. Get medical attention if symptoms persist.

**Skin contact** Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact** Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion** In the unlikely event of swallowing contact a physician or poison control centre.

**4.2. Most important symptoms and effects, both acute and delayed** Direct contact with eyes may cause temporary irritation.

**4.3. Indication of any immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically.

### **SECTION 5: Firefighting measures**

**General fire hazards** Extremely flammable aerosol.

#### 5.1. Extinguishing media

**Suitable extinguishing media** Powder. CO2, dry chemical, dry sand, alcohol-resistant foam.

<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>5.2. Special hazards arising from the substance or mixture</b>	Contents under pressure. Pressurised container may explode when exposed to heat or flame.
<b>5.3. Advice for firefighters</b>	
<b>Special protective equipment for firefighters</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
<b>Special fire fighting procedures</b>	Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
<b>Specific methods</b>	Move containers from fire area if you can do so without risk. In the event of fire and/or explosion do not breathe fumes.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel** Keep unnecessary personnel away. Keep upwind. Wear appropriate protective equipment and clothing during clean-up. Do not touch or walk through spilled material. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.

**For emergency responders** Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

**6.2. Environmental precautions** Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases.

**6.3. Methods and material for containment and cleaning up** Refer to attached safety data sheets and/or instructions for use. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. This product is miscible in water. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Prevent product from entering drains. Following product recovery, flush area with water.

**6.4. Reference to other sections** For personal protection, see section 8. For waste disposal, see section 13 of the SDS.

## **SECTION 7: Handling and storage**

**7.1. Precautions for safe handling** Pressurised container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded. Do not re-use empty containers. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

**7.2. Conditions for safe storage, including any incompatibilities** Level 1 Aerosol.

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source.

TRGS 510 storage class: 2B

**7.3. Specific end use(s)** Coating.

## **SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

#### **Occupational exposure limits**

##### **Germany**

##### **Components**

	<b>Type</b>	<b>Value</b>
Butane (CAS 106-97-8)	STEL	9600 mg/m <sup>3</sup>
		4000 ppm
Isobutane (CAS 75-28-5)	STEL	9600 mg/m <sup>3</sup>
		4000 ppm
Pentane (CAS 109-66-0)	STEL	6000 mg/m <sup>3</sup>
		2000 ppm
<b>Comments:</b> 15 minutes average value		
Propane (CAS 74-98-6)	STEL	7200 mg/m <sup>3</sup>
		4000 ppm

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Components	Type	Value
Butane (CAS 106-97-8)	TWA	2400 mg/m <sup>3</sup> 1000 ppm
Isobutane (CAS 75-28-5)	TWA	2400 mg/m <sup>3</sup> 1000 ppm
Pentane (CAS 109-66-0)	TWA	3000 mg/m <sup>3</sup> 1000 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m <sup>3</sup> 1000 ppm

**Germany - TRGS 900**

Components	Type	Value
Butane (CAS 106-97-8)	STEL	9600 mg/m <sup>3</sup> 4000 ppm
<b>Comments:</b> 15 minutes average value		
Isobutane (CAS 75-28-5)	STEL	9600 mg/m <sup>3</sup> 4000 ppm
<b>Comments:</b> 15 minutes average value		
Pentane (CAS 109-66-0)	STEL	6000 mg/m <sup>3</sup> 2000 ppm
<b>Comments:</b> STV 15 minutes average value		
Propane (CAS 74-98-6)	STEL	7200 mg/m <sup>3</sup> 4000 ppm
<b>Comments:</b> 15 minutes average value		
<b>Comments:</b> 15 minutes average value		

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace**

Components	Type	Value
Butane (CAS 106-97-8)	AGW	2400 mg/m <sup>3</sup> 1000 ppm
Isobutane (CAS 75-28-5)	AGW	2400 mg/m <sup>3</sup> 1000 ppm
Pentane (CAS 109-66-0)	AGW	3000 mg/m <sup>3</sup> 1000 ppm
Propane (CAS 74-98-6)	AGW	1800 mg/m <sup>3</sup> 1000 ppm

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU**

Components	Type	Value
Pentane (CAS 109-66-0)	TWA	3000 mg/m <sup>3</sup> 1000 ppm

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no-effect level (DNEL)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

**8.2. Exposure controls**

**Appropriate engineering controls** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

## Individual protection measures, such as personal protective equipment

<b>General information</b>	Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
<b>Eye/face protection</b>	If contact is likely, safety glasses with side shields are recommended.
<b>Skin protection</b>	
<b>- Hand protection</b>	Viton gloves are recommended. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.
<b>- Other</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>Hygiene measures</b>	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
<b>Environmental exposure controls</b>	Environmental manager must be informed of all major releases.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	Aerosol.
<b>Form</b>	Aerosol
<b>Colour</b>	Blue, Green, Red.
<b>Odour</b>	Not available.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Ignition temperature</b>	365 °C (689 °F)
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	-44 °C (-47,2 °F)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.

#### Upper/lower flammability or explosive limits

<b>Explosive limit - lower (%)</b>	1,5 %
<b>Explosive limit – upper (%)</b>	10,9 %
<b>Vapour pressure</b>	2700 hPa (@ 20 °C)
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Negligible
<b>Solubility (other)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not available.
<b>Oxidising properties</b>	Not available.

### 9.2. Other information

<b>Density</b>	1,28 g/cm <sup>3</sup> (@ 20 °C)
<b>VOC (EU)</b>	Not applicable

## SECTION 10: Stability and reactivity

**10.1. Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## **SECTION 11: Toxicological information**

<b>General information</b>	Not available.
<b>Information on likely routes of exposure</b>	
<b>Inhalation</b>	May cause drowsiness and dizziness. Headache. Nausea, vomiting.
<b>Skin contact</b>	Based on available data, the classification criteria are not met.
<b>Eye contact</b>	Based on available data, the classification criteria are not met.
<b>Ingestion</b>	May cause discomfort if swallowed.
<b>Symptoms</b>	May cause drowsiness and dizziness. Headache. Nausea, vomiting.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Narcotic effects.
<b>Skin corrosion/irritation</b>	Based on available data, the classification criteria are not met.
<b>Serious eye damage/eye irritation</b>	Based on available data, the classification criteria are not met.
<b>Respiratory sensitisation</b>	Based on available data, the classification criteria are not met.
<b>Skin sensitisation</b>	Based on available data, the classification criteria are not met.
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>Reproductive toxicity</b>	Based on available data, the classification criteria are not met.
<b>Specific target organ toxicity - single exposure</b>	May cause drowsiness and dizziness.
<b>Specific target organ toxicity - repeated exposure</b>	Based on available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met.
<b>Mixture versus substance information</b>	Not available.
<b>Other information</b>	Not available.

## **SECTION 12: Ecological information**

<b>12.1. Toxicity</b>	Harmful to aquatic life with long lasting effects.
<b>12.2. Persistence and degradability</b>	Not available.
<b>12.3. Bioaccumulative potential</b>	Not available.
<b>Partition coefficient n-octanol /water (log Kow)</b>	
Pentane	3,39
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	Not available.
<b>12.5. Results of PBT and vPvB assessment</b>	The mixture contains no substance that fulfils the criteria of a PBT- or vPvB substance.
<b>12.6. Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this product.

## **SECTION 13: Disposal considerations**

<b>13.1. Waste treatment methods</b>	
<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Do not re-use empty containers.
<b>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company. 08 02 01 15 01 04
<b>Disposal methods/information</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## **SECTION 14: Transport information**

### **ADR**

<b>14.1. UN number</b>	UN1950
<b>14.2. UN proper shipping name</b>	AEROSOLS, flammable
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	2.1
<b>Hazard No. (ADR)</b>	Not available.
<b>Tunnel restriction code</b>	D
<b>14.4. Packing group</b>	Not applicable.
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	190, 327, 344,625
<b>Classification code</b>	5F

### **IATA**

<b>14.1. UN number</b>	UN1950
<b>14.2. UN proper shipping name</b>	Aerosols, flammable
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>14.4. Packing group</b>	Not applicable.
<b>Packaging instructions</b>	203
<b>Packaging instructions cargo only</b>	203
<b>14.5. Environmental hazards</b>	No.
<b>ERG Code</b>	10L
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed.
<b>Cargo aircraft only</b>	Allowed.
<b>Maximum net quantity packaging - Passenger and cargo aircraft</b>	75 kg
<b>Maximum net quantity packaging cargo only</b>	150 kg
<b>Maximum net quantity packaging - Limited quantity</b>	30.00 kg
<b>Special provisions</b>	A145,A167,A802

### **IMDG**

<b>14.1. UN number</b>	UN1950
<b>14.2. UN proper shipping name</b>	AEROSOLS
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	2
<b>Subsidiary risk</b>	-
<b>14.4. Packing group</b>	Not applicable.

#### 14.5. Environmental hazards

Marine pollutant No.

EmS F-D,S-U

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Special provisions 63,190,277,327,344,959

14.7. Transport in bulk Not available.

according to Annex II of MARPOL 73/78 and the IBC Code

### **SECTION 15: Regulatory information**

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

##### EU regulations

Not applicable.

##### Restrictions on use

Not applicable.

##### Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws.

##### Other EU regulations

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended**

Pentane (CAS 109-66-0)

VOC (EU): Not applicable

**Directive 2012/18/EU on major accident hazards involving dangerous substances**

Category: P3a

##### National regulations

Follow national regulation for work with chemical agents.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

##### Water hazard class

VwVwS (According to Annex IV) WGK2

### **SECTION 16: Other information**

#### List of abbreviations

AC: Article category.

acc., acc.to: according, according to.

ACGIH: American Conference of Governmental Industrial Hygienists.

AFNOR: French Institute for Standards (Association Française de Normalisation).

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures).

ADR: European agreement concerning the international carriage of dangerous goods by road (Accord européen relatif transport des marchandises dangereuses par route).

AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).

AICS: Australian Inventory of Chemical Substances.

ANSI: American National Standards Institute.

AOEL: Acceptable Operator Exposure Level.

AOX: adsorbable organic halogen compounds.

approx.: approximately.

ASTM: ASTM International.

ATE: Acute Toxicity Estimate according to REGULATION (EC) No 1272/2008 (CLP).

BAM: Federal Institute for Materials Research and Testing, Germany (Bundesanstalt für Materialforschung und -prüfung).

Maximum permissible concentration of biological working substances (BAT: Biologische Arbeitsstofftoleranzwerte).

BAuA: Federal Institute for Occupational Health and Safety, Germany (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin).

BCF: Bio-concentration factor.

BET: Brunauer-Emmett-Teller.

BLV: Biological Limit Value.

BLV: Biological Limit Value (BGW: Biologischer Grenzwert, Austria).

BMGV: Biological Monitoring Guidance Value (EH40,UK).

BSI: British Standards Institution.



BS: British Standard.  
BOD5: Biochemical oxygen demand within 5 days.  
BOD: Biochemical oxygen demand.  
bw: Body weight.  
calcd.: calculated.  
CAS: Chemical Abstract Service.  
CEN: European Committee for Standardization (Comité Européen de Normalisation).  
CESIO: European Committee on Organic Surfactants and their Intermediates (Comité Européen des Agents de Surface et de leurs Intermédiaires Organiques).  
ChemRRV: Ordinance on the risk reduction related to chemical products (ChemRRV: Chemikalien-Risikoreduktions-verordnung, Switzerland).  
CLP: Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.  
CMR: Substances classified as Carcinogenic, Mutagenic or toxic for Reproduction.  
CNS: Central Nervous System.  
CNT: Carbon nanotubes.  
COD: Chemical Oxygen Demand.  
CSA: Chemical Safety Assessment.  
CSR: Chemical Safety Report.  
DETEC: Swiss Federal Department of the Environment, Transport, Energy and Communications.  
DIN: German Standards Institute / German industrial norm (Deutsches Institut für Normung / Deutsche Industrienorm).  
DMEL: Derived Minimum Effect Level.  
DNEL: Derived No Effect Level.  
DOC: Dissolved organic carbon.  
DPD: Directive 1999-45-EC / Dangerous Preparations Directive.  
DSD: Directive 67/548-EC / Dangerous Substances Directive.  
DSL: Canada, Domestic Substances List.  
DU: Downstream User.  
dw: dry weight.  
e.g.: For example, for instance.  
EBW: Exposure Based Waiving.  
EC: European Community.  
EC50: Effective Concentration 50%.  
ECHA: European Chemical Agency.  
EINECS: European Inventory of Existing Commercial Chemical Substances.  
ELINCS: European List of Notified Chemical Substances.  
EN: European norm.  
ENCS: Japan, Inventory of Existing and New Chemical Substances.  
EPA: United States Environmental Protection Agency.  
ERC: Environmental release category.  
ES: Exposure scenario.  
EUSES: European Union System for the Evaluation of Substances.  
EWC/EWL: European Waste Catalogue.  
GCL: General concentration limit.  
gen.: general.  
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.  
GLP: Good Laboratory Practice.  
GW/VL: Occupational exposure limit value.  
GW-kw: Occupational exposure limit value - short term.  
GW-M/VL-M: Occupational exposure limit value – "Ceiling".  
GWP: Global Warming Potential.  
HPV: High Production Volume Chemicals.  
HEPA: High Efficiency Particulate Air.  
IARC: International Agency for Research on Cancer.  
IATA: International Air Transport Association.  
IBC: Intermediate Bulk Container.  
IBC Code: International Bulk Chemical (Code) (International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk).  
ICAO: International Civil Aviation Organization.  
IC50: Inhibition Concentration 50%.  
IECSC: Inventory of Existing Chemical Substances in China.  
IMDG Code: International Maritime Dangerous Goods Code.  
IMO: International Maritime Organization.  
incl.: including, inclusive.  
ISO: International Standards Organization.  
IUCLID: International Uniform Chemical Information Database.  
IUPAC: International Union for Pure Applied Chemistry.

KECI: Korea Existing Chemicals Inventory.  
 LCA: Life Cycle Assessment.  
 LC: Lethal Concentration.  
 LC50: Lethal Concentration 50%.  
 LCLo: Lowest published lethal concentration.  
 LD50: Lethal Dose 50%.  
 LEV: Local exhaust ventilation.  
 LOAEL: Lowest observed adverse effect level.  
 LOEC: Lowest observable effect concentration.  
 LOEL: Lowest observable effect level.  
 LPV: Low Production Volume Chemicals.  
 LQ: Limited Quantities.  
 Air Quality Control Regulation (LRV: Luftreinhalteverordnung, Switzerland).  
 TLV-STEL: Threshold limit value - Short-term exposure limit / Technical reference concentration - short-time value (TRK-Kzw = Technische Richtkonzentration - Kurzzeitwert).  
 Maximum allowable workplace concentration – instantaneous value (MAK-Mow: Maximale Arbeitsplatzkonzentration – Momentanwert, Austria)  
 Maximum allowable workplace concentration – daily mean value / Technical standard concentration – daily mean value (MAK-Tmw, TRK-Tmw : Maximale Arbeitsplatzkonzentration - Tagesmittelwert / TRK-Tmw = Technische Richtkonzentration – Tagesmittelwert, Austria).  
 MAK: Threshold limit values Germany (Maximale Arbeitsplatzkonzentration - DFG).  
 MARPOL: International Convention for the Prevention of Pollution From Ships.  
 MTD: Maximum tolerated dose.  
 MWCNT: Multi-walled carbon nanotubes.  
 n.a.: not applicable.  
 N/A: Not available.  
 n.d.: not determined.  
 NLP: No Longer Polymers.  
 NDSL: Canada, Non-Domestic Substances List.  
 NF: French Norm (See AFNOR).  
 NFPA: National Fire Protection Association.  
 NIOSH: National Institute for Occupational Safety & Health.  
 NOAEC: No Observed Adverse Effect Concentration.  
 NOAEL: No observed adverse effect level.  
 NOEC: No observed effect concentration.  
 NOEL: No observed effect level.  
 NTP: National Toxicology Program.  
 NZIoC: New Zealand Inventory of Chemicals.  
 ODP: Ozone Depletion Potential.  
 OECD: Organization for Economic Cooperation and Development.  
 OEL: Occupational Exposure Limit.  
 org.: organic.  
 OSHA: Occupational Safety & Health Administration.  
 PAH: Polycyclic Aromatic Hydrocarbons.  
 PBT: Persistent, bioaccumulative, toxic.  
 PC: Product category.  
 PE: Polyethylene.  
 PEC: Predicted Environmental Concentration.  
 PEL: Permissible Exposure Limit.  
 PIC: Prior Informed Consent.  
 PICCS: Philippines Inventory of Commercial Chemical Substances.  
 PNEC: Predicted No Effect Concentration.  
 POCP: Photochemical ozone creation potential (Photochemisches Ozonbildungspotenzial).  
 POP: Persistent Organic Pollutant.  
 PPORD: Product and Process Oriented Research and Development.  
 PPE: Personal Protective Equipment.  
 PROC: Process category.  
 RA: Risk Assessment.  
 RAR: Risk Assessment Report.  
 RCRA: Resource Conservation Recovery Act.  
 REACH: Registration, Evaluation and Authorization of Chemicals (REGULATION (EC) No 1907/2006 concerning Registration, Evaluation Authorization and Restriction of Chemicals).  
 RID: Regulations concerning the international carriage of dangerous goods by rail (Règlement International concernant le transport de marchandises dangereuses par chemin de fer).  
 RMM: Risk Management Measure.  
 RTECS: Registry of Toxic Effects of Chemical Substances.  
 QSAR: Quantitative Structure Activity Relation.  
 SARA: Superfund Amendments and Reauthorization Act.

SADT: Self-Accelerating Decomposition Temperature.  
 SCL: Specific concentration limit.  
 SEA: socio economic analysis.  
 STEL: Short-term Exposure Limit.  
 STP: Sewage treatment plant.  
 SU: Sector of use.  
 SVHC: Substance of Very High Concern.  
 SWCNT: single-walled carbon nanotubes.  
 ThOD: Theoretical oxygen demand.  
 TOC: Total Organic Carbon.  
 TLV: Threshold Limit Value.  
 TRA: Targeted Risk Assessment.  
 TSCA: Toxic Substance Control Act.  
 TWA: Time Weighted Average.  
 UC: Use category.  
 UDS: Use descriptor system.  
 UEC: Use and exposure categories.  
 UN: United Nations.  
 UN RTDG: United Nations Recommendations on the Transport of Dangerous Goods.  
 UVCB: Unknown or Variable Composition, Complex Reaction Products, and Biological Materials.  
 Regulation on combustible liquids (VbF: Verordnung über brennbare Flüssigkeiten, Austria).  
 Regulation of the Austria Minister for Labor and Social Affairs regarding health surveillance at the workplace (VGÜ = Verordnung des Bundesministers für Arbeit und Soziales über die Gesundheitsüberwachung am Arbeitsplatz).  
 VOC: Volatile organic compounds.  
 vPvB: very Persistent, very Bioaccumulative.  
 WEL-TWA: Workplace Exposure Limit-Long term exposure limit (8-hour TWA(=time weighted average)reference period).  
 WEL-STEL: Workplace Exposure Limit-Short term exposure limit (15-minute reference period).  
 WoE: Weight of evidence.  
 WHMIS: Workplace Hazardous Materials Information System.  
 WHO: World Health Organization.  
 wwt: wet weight.

**References**

Not available.

**Information on evaluation method leading to the classification of mixture**

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

**Full text of any H-statements not written out in full under Sections 2 to 15**

H220 Extremely flammable gas.  
 H225 Highly flammable liquid and vapour.  
 H280 Contains gas under pressure; may explode if heated.  
 H304 May be fatal if swallowed and enters airways.  
 H336 May cause drowsiness or dizziness.  
 H411 Toxic to aquatic life with long lasting effects.

**Revision information**

None.

**Training information**

Follow training instructions when handling this material.

**Disclaimer**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.