

## Safety Data Sheet

### HYDROFAN MICRO PEARL WHITE

Safety Data Sheet dated 06/12/2023 version 4



---

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

### 1.1. Product identifier

Mixture identification:

Trade name: HYDROFAN MICRO PEARL WHITE

Trade code: LNHF0483

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

Recommended use: Coatings and paints, thinners, paint removers

Mono compound enamel - finish coat

Water pigmented dispersion

Professional uses

Uses advised against: N.A.

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

Company: Lechler SpA - Via Cecilio, 17 - 22100 Como - CO - Italy

Telephone: +39031586111

First Email: [safety@lechler.eu](mailto:safety@lechler.eu)

### 1.4. Emergency telephone number

UNITED KINGDOM: Emergency Number 0044 1606738600 - This telephone number is available during office hours only (8.45-16.45).

UNITED STATES OF AMERICA: Emergency Contact: Lechler SPA -Tel. +39-031-586301 (8.00-18.00).

---

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Regulation (EC) n. 1272/2008 (CLP)

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

### 2.2. Label elements

The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

#### Special Provisions:

EUH208 Contains reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1). May produce an allergic reaction.

EUH211 Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

EUH210 Safety data sheet available on request.

#### Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

### 2.3. Other hazards

Results of PBT and vPvB assessment Not a PBT, vPvB substance as per the criteria of the REACH Regulation.  
Endocrine disrupting properties-Toxicity The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Endocrine disrupting properties-Ecotoxicity The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other Hazards: No other hazards

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

N.A.

### 3.2. Mixtures

Mixture identification: HYDROFAN MICRO PEARL WHITE

#### Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number
≥3 - ≤5 %	mica	CAS:12001-26-2	Not classified as hazardous	
≥3 - ≤5 %	2-butoxyethanol; ethylene glycol monobutyl ether	CAS:111-76-2 EC:203-905-0 Index:603-014-00-0	Acute Tox. 3, H331 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319  Acute Toxicity Estimate: ATE - Oral: 1200mg/kg bw ATE - Inhalation (Vapours): 3mg/l	01-2119475108-36
≥3 - ≤5 %	Rutile (TiO2)	CAS:1317-80-2 EC:215-282-2	Not classified as hazardous	
< 0,1 %	reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)	CAS:55965-84-9 Index:613-167-00-5	Acute Tox. 3, H301 Acute Tox. 2, H330 Acute Tox. 2, H310 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410, M-Chronic:100, M-Acute:100, EUH071  Specific Concentration Limits: C ≥ 0,6%: Skin Corr. 1C H314 0,06% ≤ C < 0,6%: Skin Irrit. 2 H315 0,06% ≤ C < 0,6%: Eye Irrit. 2 H319 C ≥ 0,0015%: Skin Sens. 1A H317 C ≥ 0,6%: Eye Dam. 1 H318	

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.

In case of eyes contact:

Wash immediately with water.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

### 4.2. Most important symptoms and effects, both acute and delayed

N.A.

### 4.3. Indication of any immediate medical attention and special treatment needed

N.A.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

None in particular.

### 5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

### 5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Move undamaged containers from immediate hazard area if it can be done safely.

---

## SECTION 6: Accidental release measures

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

#### For non emergency personnel:

Wear personal protection equipment.  
Remove persons to safety.  
See protective measures under point 7 and 8.

#### For emergency responders:

Wear personal protection equipment.

### 6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.  
Retain contaminated washing water and dispose it.  
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.  
Suitable material for taking up: absorbing material, organic, sand

### 6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand  
Wash with plenty of water.

### 6.4. Reference to other sections

See also section 8 and 13

---

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.  
Do not eat or drink while working.  
See also section 8 for recommended protective equipment.

#### Advice on general occupational hygiene:

### 7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

### 7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

---

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Community Occupational Exposure Limits (OEL)

	OEL Type	Country	Occupational Exposure Limit
mica CAS: 12001-26-2	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m <sup>3</sup> For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected wh
	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 0,8 mg/m <sup>3</sup> For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected wh
	ACGIH		Long Term: 0,1 mg/m <sup>3</sup> R - Pneumoconiosis
2-butoxyethanol; ethylene glycol monobutyl ether CAS: 111-76-2	EU		Long Term: 98 mg/m <sup>3</sup> - 20 ppm; Short Term: 246 mg/m <sup>3</sup> - 50 ppm Behaviour Indicative 2000/39/EC

EU		Identifies the possibility of significant uptake through the skin
EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 25 ppm; Short Term: 50 ppm Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to
Rutile (TiO <sub>2</sub> ) CAS: 1317-80-2	ACGIH	Long Term: 10 mg/m <sup>3</sup> LEC-TD-66807

### Biological limit values

2-butoxyethanol; ethylene glycol monobutyl ether CAS: 111-76-2	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of turn Value: 200 mg/g Creatinine; Medium: Urine Remark: Maximum allowable occupational exposure limits in the workplace - Table 3. Adopted Biological Exposu
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of turn; End of working week Value: 200 mg/g Creatinine; Medium: Urine Remark: Czech Republic. Biological Exposure Indices
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of turn; End of working week Value: 17 mmol/mmol creatinine; Medium: Urine Remark: Czech Republic. Biological Exposure Indices
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: Immediately after exposure or after working hours Value: 150 mg/g Creatinine; Medium: Urine Remark: TRGS 903 - Biological limit values
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: In case of long-term exposure: after more than one shift Value: 100 mg/L; Medium: Urine Remark: TRGS 903 - Biological limit values
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of turn Value: 200 mg/g Creatinine; Medium: Urine Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of turn Value: 200 mg/g Creatinine; Medium: Urine Remark: Portuguese Norm 1796 - Biological Exposure Indices
	Biological Indicator: methoxy acetic acid; Sampling Period: during long-term exposure: at the end of the work shift after several consecutive workdays Value: 150 mg/g Creatinine; Medium: Urine Remark: Slovenia. BAT-values
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of workday Value: 200 mg/g Creatinine; Medium: Urine Remark: Occupational Exposure Limits for Chemical Agents in Spain - Biological Exposure Values
	Biological Indicator: 2-butoxy acetic acid; Sampling Period: Immediately after exposure or after working hours Value: 150 mg/g Creatinine; Medium: Urine Remark: Svizzera. Lista di valori BAT
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: After shift Value: 240 Millimoles per mole Creatinine; Medium: Urine Remark: UK. Biological monitoring guidance values
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of turn Value: 200 mg/g Creatinine; Medium: Urine Remark: ACGIH - Indicatori di Esposizione Biologica (BEI)
	Biological Indicator: Butoxyacetic acid ( BAA ); Sampling Period: End of workday Value: 200 mg/g Creatinine; Medium: Urine Remark: VE.Biological Exposure Limits
	Sampling Period: In case of long-term exposure: after more than one shift
	Sampling Period: End of turn
	Sampling Period: In case of long-term exposure: after more than one shift

### Predicted No Effect Concentration (PNEC) values

2-butoxyethanol; ethylene glycol monobutyl	Exposure Route: Fresh Water; PNEC Limit: 8,8 mg/l
---	---

ether  
CAS: 111-76-2

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 26,4 mg/l  
Exposure Route: Marine water; PNEC Limit: 0,88 mg/l  
Exposure Route: Freshwater sediments; PNEC Limit: 34,6 mg/kg dry weight (d.w.)  
Exposure Route: Marine water sediments; PNEC Limit: 3,46 mg/kg dry weight (d.w.)  
Exposure Route: Soil; PNEC Limit: 2,33 mg/kg dry weight (d.w.)  
Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 436 mg/l

#### Derived No Effect Level (DNEL) values

2-butoxyethanol; Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects  
ethylene glycol monobutyl ether Consumer: 147 mg/m<sup>3</sup>  
CAS: 111-76-2  
Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Consumer: 426 mg/m<sup>3</sup>  
Exposure Route: Human Oral; Exposure Frequency: Short Term, systemic effects  
Consumer: 26,7 mg/kg dry weight (d.w.)  
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 59 mg/m<sup>3</sup>  
Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 6,3 mg/kg dry weight (d.w.)  
Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects  
Worker Professional: 246 mg/m<sup>3</sup>  
Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Worker Professional: 1091 mg/m<sup>3</sup>  
Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 98 mg/m<sup>3</sup>

#### 8.2. Exposure controls

Eye protection:

Not needed for normal use. Anyway, operate according good working practices.

Protection for skin:

No special precaution must be adopted for normal use.

Protection for hands:

Not needed for normal use.

Respiratory protection:

N.A.

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

Hygienic and Technical measures

N.A.

---

### SECTION 9: Physical and chemical properties

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

Physical State: Liquid  
Colour: White  
Odour: N.A.  
pH: Not Relevant  
Kinematic viscosity: > 20,5 mm<sup>2</sup>/sec (40 °C)  
Melting point / freezing point: N.A.  
Initial boiling point and boiling range: N.A.  
Flash point: > 93°C  
Upper/lower flammability or explosive limits: N.A.  
Vapour density: N.A.  
Vapour pressure: N.A.  
Relative density: 1.07 g/cm<sup>3</sup>  
Solubility in water: N.A.

Solubility in oil: N.A.  
Partition coefficient (n-octanol/water): N.A.  
Auto-ignition temperature: N.A.  
Decomposition temperature: N.A.  
Flammability: N.A.  
Kinematic viscosity m<sup>2</sup>/s (40°C) > 20,5 mm<sup>2</sup>/sec (40 °C)  
Viscosity: = 59.00 s - Method: ISO/DIN 2431 84 - Section: 6.00 mm

**Particle characteristics:**

Particle size: N.A.

**9.2. Other information**

Evaporation rate: N.A.  
Miscibility: N.A.  
Conductivity: N.A.  
No other relevant information

---

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Stable under normal conditions

**10.2. Chemical stability**

Data not available.

**10.3. Possibility of hazardous reactions**

None.

**10.4. Conditions to avoid**

Stable under normal conditions.

**10.5. Incompatible materials**

None in particular.

**10.6. Hazardous decomposition products**

None.

---

**SECTION 11: Toxicological information**

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Toxicological Information of the Preparation**

a) acute toxicity	Not classified Based on available data, the classification criteria are not met ATEmix - Oral : 31809.8 mg/kg bw ATEmix - Inhalation (Vapours) : 422.274 mg/l
b) skin corrosion/irritation	Not classified Based on available data, the classification criteria are not met
c) serious eye damage/irritation	Not classified Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation	Not classified Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified Based on available data, the classification criteria are not met

**Toxicological information on main components of the mixture:**

2-butoxyethanol;	a) acute toxicity	ATE - Oral : 1200 mg/kg bw
ethylene glycol monobutyl		
ether		

ATE - Inhalation (Vapours) : 3 mg/l

LD50 Oral Rat = 1746, mg/kg

LD50 Skin Rabbit > 2000, mg/kg

OECD Test Guideline 401

OECD Test Guideline 402

## 11.2. Information on other hazards

### Endocrine disrupting properties:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

---

## SECTION 12: Ecological information

### 12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

#### List of Eco-Toxicological properties of the product

Not classified for environmental hazards.

No data available for the product

#### List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
2-butoxyethanol; ethylene glycol monobutyl ether	CAS: 111-76-2 - EINECS: 203-905-0 - INDEX: 603-014-00-0	a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss (rainbow trout) = 1474 mg/L 96 H OECD Test Guideline 203  a) Aquatic acute toxicity : EC50 Invertebrates Daphnia magna (Water flea) = 1550 mg/L 48 H OECD Test Guideline 202  e) Plant toxicity : EC50 Algae Pseudokirchneriella subcapitata (green algae) = 911 mg/L 72 H OECD Test Guideline 201  b) Aquatic chronic toxicity : NOEC Fish Brachydanio rerio > 100 mg/L 21 D OECD Test Guideline 204

### 12.2. Persistence and degradability

N.A.

### 12.3. Bioaccumulative potential

N.A.

### 12.4. Mobility in soil

N.A.

### 12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration  $\geq$  0.1%

### 12.6. Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7. Other adverse effects

N.A.

---

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Recover if possible. In so doing, comply with the local and national regulations currently in force.

---

## SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

### 14.1. UN number or ID number

N/A

### 14.2. UN proper shipping name

ADR-Shipping Name: N/A

IATA-Shipping Name: N/A

IMDG-Shipping Name: N/A

#### **14.3. Transport hazard class(es)**

ADR-Class: N/A

IATA-Class: N/A

IMDG-Class: N/A

#### **14.4. Packing group**

ADR-Packing Group: N/A

IATA-Packing group: N/A

IMDG-Packing group: N/A

#### **14.5. Environmental hazards**

Toxic ingredients quantity: 0.00

Very toxic ingredients quantity: 0.00

Marine pollutant: No

Environmental Pollutant: No

IMDG-EMS: N/A

#### **14.6. Special precautions for user**

Road and Rail (ADR-RID):

ADR-Label: N/A

ADR - Hazard identification number: N/A

ADR-Special Provisions: N/A

ADR-Transport category (Tunnel restriction code): N/A

Air (IATA):

IATA-Passenger Aircraft: N/A

IATA-Cargo Aircraft: N/A

IATA-Label: N/A

IATA-Subsidiary hazards: N/A

IATA-Erg: N/A

IATA-Special Provisions: N/A

Sea (IMDG):

IMDG-Stowage and handling: N/A

IMDG-Segregation: N/A

IMDG-Subsidiary hazards: N/A

IMDG-Special Provisions: N/A

#### **14.7. Maritime transport in bulk according to IMO instruments**

N.A.

---

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

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) n. 2020/217 (ATP 14 CLP)

Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Regulation (EU) n. 2021/643 (ATP 16 CLP)

Regulation (EU) n. 2021/849 (ATP 17 CLP)

Regulation (EU) n. 2022/692 (ATP 18 CLP)

Regulation (EU) n. 2020/878

#### **Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH)**



**and subsequent modifications:**

Restrictions related to the product: None.

Restrictions related to the substances contained: 40, 75

**Provisions related to directive EU 2012/18 (Seveso III):**

None

**Regulation (EU) No 649/2012 (PIC regulation)**

No substances listed

**German Water Hazard Class.**

1: Low hazard to waters

**German Lagerklasse according to TRGS 510:**

LGK 10

**SVHC Substances:**

No SVHC substances present in concentration  $\geq 0.1\%$

**DIRECTIVE 2010/75/EU (VOC directive)**

Volatile Organic compounds - VOCs = 4.29 %

Volatile Organic compounds - VOCs = 45.86 g/L

Estimated Total Content of Water 72.87 %

Estimated Total Solid Content 22.85 %

**Classification according to VbF**

Classification according to VbF A III - Flash Point  $> 55\text{ }^{\circ}\text{C}$  up to  $100\text{ }^{\circ}\text{C}$ , at  $15\text{ }^{\circ}\text{C}$  not miscible with water

**Mal-Code (Denmark)**

Mal-Code (Denmark)	Mal Factor	Unit of Measure	Revision Status / Number	Regulatory Base
1 - 1	198	m3 air/10 g	1993	Administrative determined MAL-Factors

**Biocides**

REGULATION (EC) No 528/2012

**Substance**

C(M)IT/MIT (3:1)

**Treated Article**

In-can preservatives

**15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out for the mixture.

---

**SECTION 16: Other information**

Code	Description
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.

Code	Hazard class and hazard category	Description
3.1/3/Inhal	Acute Tox. 3	Acute toxicity (inhalation), Category 3
3.1/4/Oral	Acute Tox. 4	Acute toxicity (oral), Category 4
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/2	Eye Irrit. 2	Eye irritation, Category 2

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor  
 BEI: Biological Exposure Index  
 BOD: Biochemical Oxygen Demand  
 CAS: Chemical Abstracts Service (division of the American Chemical Society).  
 CAV: Poison Center  
 CE: European Community  
 CLP: Classification, Labeling, Packaging.  
 CMR: Carcinogenic, Mutagenic and Reprotoxic  
 COD: Chemical Oxygen Demand  
 COV: Volatile Organic Compound  
 CSA: Chemical Safety Assessment  
 CSR: Chemical Safety Report  
 DMEL: Derived Minimal Effect Level  
 DNEL: Derived No Effect Level.  
 DPD: Dangerous Preparations Directive  
 DSD: Dangerous Substances Directive  
 EC50: Half Maximal Effective Concentration  
 ECHA: European Chemicals Agency  
 EINECS: European Inventory of Existing Commercial Chemical Substances.  
 ES: Exposure Scenario  
 GefStoffVO: Ordinance on Hazardous Substances, Germany.  
 GHS: Globally Harmonized System of Classification and Labeling of Chemicals.  
 IARC: International Agency for Research on Cancer  
 IATA: International Air Transport Association.  
 IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).  
 IC50: half maximal inhibitory concentration  
 ICAO: International Civil Aviation Organization.  
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).  
 IMDG: International Maritime Code for Dangerous Goods.  
 INCI: International Nomenclature of Cosmetic Ingredients.  
 IRCCS: Scientific Institute for Research, Hospitalization and Health Care  
 KAFH: KAFH  
 KSt: Explosion coefficient.  
 LC50: Lethal concentration, for 50 percent of test population.  
 LD50: Lethal dose, for 50 percent of test population.  
 LDLo: Leathal Dose Low  
 N.A.: Not Applicable  
 N/A: Not Applicable  
 N/D: Not defined/ Not available  
 NA: Not available  
 NIOSH: National Institute for Occupational Safety and Health  
 NOAEL: No Observed Adverse Effect Level  
 OSHA: Occupational Safety and Health Administration  
 PBT: Persistent, Bioaccumulative and Toxic  
 PGK: Packaging Instruction  
 PNEC: Predicted No Effect Concentration.  
 PSG: Passengers  
 RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.  
 STEL: Short Term Exposure limit.  
 STOT: Specific Target Organ Toxicity.  
 TLV: Threshold Limiting Value.  
 TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).  
 vPvB: Very Persistent, Very Bioaccumulative.  
 WGK: German Water Hazard Class.

**Paragraphs modified from the previous revision:**

- SECTION 3: Composition/information on ingredients
- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 14: Transport information
- SECTION 15: Regulatory information

- SECTION 16: Other information