



Trade name: Mara® Shield 5 L UV-RG

Version: 6 / WORLD

Date revised: 03.12.2015

Substance number: 362198001

Replaces Version: 5 / WORLD

Print date: 06.12.15

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

### **1.1. Product identifier**

Mara® Shield 5 L UV-RG

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

#### **Use of the substance/preparation**

Roller Coating

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

#### **Address**

Marabu GmbH & Co. KG

Asperger Strasse 4

71732 Tamm

Germany

Telephone no. +49-7141/691-0

Fax no. +49-7141/691-147

Information provided by / telephone Department product safety

E-mail address of person responsible PRSI@marabu.de

for this SDS

### **1.4. Emergency telephone number**

(+49) (0)621-60-43333

## **SECTION 2: Hazards identification \*\*\***

### **2.1. Classification of the substance or mixture**

#### **Classification (Regulation (EC) No. 1272/2008)**

Classification (Regulation (EC) No. 1272/2008)

Skin Irrit. 2	H315
Eye Irrit. 2	H319
Skin Sens. 1A	H317
Aquatic Chronic 3	H412

### **2.2. Label elements**

#### **Labelling according to regulation (EC) No 1272/2008**

##### **Hazard pictograms**



##### **Signal word**

Warning

##### **Hazard statements**

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long lasting effects.



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**Precautionary statements \*\*\***

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264.1	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.

**Hazardous component(s) to be indicated on label (Regulation (EC) No. 1272/2008)**

contains Hexamethylene diacrylate;2-Phenoxyethyl acrylate

**Supplemental information**

EUH204 Contains isocyanates. May produce an allergic reaction.

**2.3. Other hazards**

No special hazards have to be mentioned.

**SECTION 3: Composition/information on ingredients****3.2. Mixtures****Chemical characterization**

UV - curing liquid coating based on reactive acrylates

**Hazardous ingredients****2-[[[(Butylamino)carbonyl]oxy]ethyl acrylate**

CAS No.	63225-53-6
EINECS no.	264-036-0
Concentration	>= 25 < 50 %

Classification (Regulation (EC) No. 1272/2008)

Skin Irrit. 2	H315
Eye Irrit. 2	H319

**2-Phenoxyethyl acrylate**

CAS No.	48145-04-6
EINECS no.	256-360-6
Registration no.	01-2119980532-35
Concentration	>= 10 < 25 %

Classification (Regulation (EC) No. 1272/2008)

Skin Sens. 1A	H317
Aquatic Chronic 2	H411

**Hexamethylene diacrylate**

CAS No.	13048-33-4
EINECS no.	235-921-9
Registration no.	01-2119484737-22
Concentration	>= 10 < 25 %

Classification (Regulation (EC) No. 1272/2008)

Eye Irrit. 2	H319
Skin Irrit. 2	H315
Skin Sens. 1	H317
Aquatic Chronic 3	H412



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

### **4.1. Description of first aid measures**

#### **General information**

In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious place in recovery position and seek medical advice.

#### **After inhalation**

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

#### **After skin contact**

Remove contaminated clothing. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners. In case of accidental skin contact avoid concurrent exposure to the sun or other sources of UV light, which may increase the sensitivity of skin.

#### **After eye contact**

Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

#### **After ingestion**

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

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

Until now no symptoms known so far.

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

#### **Hints for the physician / treatment**

Treat symptomatically

## **SECTION 5: Firefighting measures**

### **5.1. Extinguishing media**

#### **Suitable extinguishing media**

Recommended: alcohol resistant foam, CO<sub>2</sub>-blanket, powders, water spray/mist, Not be used for safety reasons: water jet

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

In the event of fire the following can be released: Carbon dioxide (CO<sub>2</sub>); Carbon monoxide (CO); dense black smoke; Nitrogen oxides (NO<sub>x</sub>)

### **5.3. Advice for firefighters**

#### **Special protective equipment for fire-fighting**

Cool closed containers exposed to fire with water. Do not allow run-off from fire fighting to enter drains or water courses.

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

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

Exclude sources of ignition and ventilate the area. Avoid breathing vapours. Refer to protective measures listed in Sections 7 and 8.

### **6.2. Environmental precautions**

Do not allow to enter drains or waterways. If the product contaminates lakes, rivers or sewage, inform appropriate authorities in accordance with local regulations.

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



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Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13). Clean preferably with a detergent - avoid use of solvents.

#### 6.4. Reference to other sections

Information regarding Safe handling, see Section 7. Information regarding personal protective measures, see Section 8. Information regarding waste disposal, see Section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

Skin and eye contact constitutes the principal hazard. Persons with a history of skin sensitisation problems should not be employed in any process in which this mixture is used. Use only in well-ventilated areas. Isolate from sources of heat, sparks and open flame. Avoid skin and eye contact. Avoid the inhalation of dust, particulates and spray mist arising from the application of this mixture. Avoid inhalation of dust from sanding. Smoking, eating and drinking shall be prohibited in application area. For personal protection see Section 8. Never use pressure to empty: container is not a pressure vessel. Always keep in containers of same material as the original one. Comply with the health and safety at work laws. Do not allow to enter drains or water courses.

#### Classification of fires / temperature class / Ignition group / Dust explosion class

Classification of fires	B (Combustible liquid substances)
Temperature class	T3

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

#### Requirements for storage rooms and vessels

Store in accordance with national regulation

#### Hints on storage assembly

Store away from oxidising agents, from strongly alkaline and strongly acid materials.

#### Further information on storage conditions

Observe label precautions. Store between 15 and 30 °C in a dry, well ventilated place away from sources of heat and direct sunlight. Keep container tightly closed. Keep away from sources of ignition. No smoking. Prevent unauthorised access. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### 7.3. Specific end use(s)

Roller Coating

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Derived No/Minimal Effect Levels (DNEL/DMEL)

##### Hexamethylene diacrylate

Type of value	Derived No Effect Level (DNEL)	
Reference group	General Population	
Duration of exposure	Long term	
Route of exposure	oral	
Mode of action	Systemic effects	
Concentration	2,08	mg/kg/d

Type of value	Derived No Effect Level (DNEL)
Reference group	General Population
Duration of exposure	Long term
Route of exposure	dermal
Mode of action	Systemic effects

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Concentration 1,66 mg/kg/d

Type of value Derived No Effect Level (DNEL)

Reference group General Population

Duration of exposure Long term

Route of exposure inhalative

Mode of action Systemic effects

Concentration 7,24 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure dermal

Mode of action Systemic effects

Concentration 2,77 mg/kg/d

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure inhalative

Mode of action Systemic effects

Concentration 24,48 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Professional use

Duration of exposure Long term

Route of exposure dermal

Mode of action Systemic effects

Concentration 1,66 mg/kg/d

Type of value Derived No Effect Level (DNEL)

Reference group Professional use

Duration of exposure Long term

Route of exposure inhalative

Mode of action Systemic effects

Concentration 7,24 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Professional use

Duration of exposure Long term

Route of exposure oral

Mode of action Systemic effects

Concentration 2,08 mg/kg/d

**Hydroxycyclohexyl phenyl ketone**

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure dermal

Mode of action Systemic effects

Concentration 3 mg/kg

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure inhalative

Mode of action Systemic effects

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Concentration 21,16 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Consumer

Duration of exposure Long term

Route of exposure dermal

Mode of action Systemic effects

Concentration 1,5 mg/kg

Type of value Derived No Effect Level (DNEL)

Reference group Consumer

Duration of exposure Long term

Route of exposure inhalative

Mode of action Systemic effects

Concentration 5,22 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Consumer

Duration of exposure Long term

Route of exposure oral

Mode of action Systemic effects

Concentration 1,5 mg/kg

**2-Phenoxyethyl acrylate**

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure inhalative

Mode of action Systemic effects

Concentration 10 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure inhalative

Mode of action Local effects

Concentration 77 mg/m<sup>3</sup>

Type of value Derived No Effect Level (DNEL)

Reference group Worker

Duration of exposure Long term

Route of exposure dermal

Mode of action Systemic effects

Concentration 1,5 mg/kg/d

**Predicted No Effect Concentration (PNEC)**

**Hexamethylene diacrylate**

Type of value PNEC

Type Soil

Concentration 0,00397 mg/kg

Type of value PNEC

Type Freshwater sediment

Concentration 0,0137 mg/kg

Type of value PNEC

Type Freshwater

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Concentration	0,0015	mg/l
Type of value	PNEC	
Type	Saltwater	
Concentration	0,00015	mg/l
Type of value	PNEC	
Type	Sewage treatment plant (STP)	
Concentration	2,7	mg/l

**Hydroxycyclohexyl phenyl ketone**

Type of value	PNEC	
Type	Freshwater	
Concentration	0,0144	mg/l
Type of value	PNEC	
Type	Saltwater	
Concentration	0,00144	mg/l
Type of value	PNEC	
Type	Water (intermittent release)	
Concentration	0,144	mg/l
Type of value	PNEC	
Type	Sewage treatment plant (STP)	
Concentration	10	mg/l
Type of value	PNEC	
Type	Sediment	
Concentration	0,186	mg/kg
Type of value	PNEC	
Type	Marine sediment	
Concentration	0,0186	mg/kg
Type of value	PNEC	
Type	Soil	
Concentration	0,0284	mg/kg

**2-Phenoxyethyl acrylate**

Type of value	PNEC	
Type	Freshwater	
Concentration	0,002	mg/l
Type of value	PNEC	
Type	Saltwater	
Concentration	0,0002	mg/l
Type of value	PNEC	
Type	Water (intermittent release)	
Concentration	0,0121	mg/l
Type of value	PNEC	
Type	Soil	
Concentration	0,006	mg/kg
Type of value	PNEC	



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Type	Marine sediment	
Concentration	0,004	mg/kg
Type of value	PNEC	
Type	Freshwater sediment	
Concentration	0,04	mg/kg

## 8.2. Exposure controls

### Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.

### Respiratory protection

In situations where misting or flying may occur use appropriate certified respirators.

### Hand protection

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.

For prolonged or repeated handling nitrile rubber gloves with textile undergloves are required.

Material thickness > 0,5 mm

Breakthrough time > 30 min

PVC or rubber gloves are not recommended.

The breakthrough time must be greater than the end use time of the product.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

Always ensure that gloves are free from defects and that they are stored and used correctly.

The performance or effectiveness of the glove may be reduced by physical/ chemical damage and poor maintenance.

Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred.

### Eye protection

Use safety eyewear designed to protect against splash of liquids.

### Body protection

Personnel should wear protective clothing.

## SECTION 9: Physical and chemical properties

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

<b>Form</b>	liquid, viscous
<b>Colour</b>	transparent
<b>Odour</b>	of acrylic monomers
<b>Odour threshold</b>	
Remarks	No data available
<b>pH value</b>	
Remarks	Not applicable
<b>Melting point</b>	
Remarks	not determined
<b>Freezing point</b>	
Remarks	not determined
<b>Initial boiling point and boiling range</b>	
Remarks	Not applicable
<b>Flash point</b>	





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Value	> 100	°C
Method	ASTM D 6450 (CCCFP)	

**Evaporation rate (ether = 1) :**

Remarks not determined

**Flammability (solid, gas)**

Not applicable

**Upper/lower flammability or explosive limits**

Remarks not determined

**Vapour pressure**

Value	< 0,1	hPa
Temperature	20	°C
Method	calculated	

**Vapour density**

Remarks not determined

**Density**

Value	1,080	g/cm <sup>3</sup>
Temperature	20	°C
Method	DIN EN ISO 2811	

**Solubility in water**

Remarks partially miscible

**Partition coefficient: n-octanol/water**

Remarks Not applicable

**Ignition temperature**

Value	appr. 235	°C
Source	Literature value	

**Viscosity**

Remarks	
Remarks	not determined

**Efflux time**

Value	> 150	s
Method	DIN 53211 4 mm	

**Explosive properties**

evaluation no

**Oxidising properties**

evaluation None known

**9.2. Other information****Other information**

The physical specifications are approximate values and refer to the used safety relevant component(s).

**SECTION 10: Stability and reactivity****10.1. Reactivity**

No hazardous reactions when stored and handled according to prescribed instructions.

**10.2. Chemical stability**

This mixture contains materials which are unstable under the following conditions: exposure to heat (&gt;50°C), strong UV sources.

**10.3. Possibility of hazardous reactions**

Keep away from free radical initiators, peroxides, strong alkalis or reactive metals.



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**10.4. Conditions to avoid**

These could cause the product to polymerise exothermically. Unintentional contact with them should be avoided. When exposed to high temperatures may produce hazardous decomposition products.

**10.5. Incompatible materials**

No hazardous reactions when stored and handled according to prescribed instructions.

**10.6. Hazardous decomposition products**

See chapter 5.2 (Firefighting measures - Special hazards arising from the substance or mixture).

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Acute oral toxicity (Components)****2-Phenoxyethyl acrylate**

Species	rat		
LD50	>	5000	mg/kg
Method	OECD 401		

**Sensitization (Components)****Hexamethylene diacrylate**

Species	guinea pig
evaluation	sensitizing
Method	OECD 406

**Aspiration hazard**

No special hazards have to be mentioned.

**Experience in practice**

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact. Acrylate components of the mixture have irritating properties. Prolonged or repeated contact with skin or mucous membrane may result in irritation symptoms such as redness, blistering, dermatitis, etc. Cases of allergic skin reactions have been observed. The liquid splashed in the eyes may cause irritation. The inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract. Ingestion may cause nausea, weakness and central nervous system effects.

**Other information**

There are no data available on the mixture itself.

The mixture has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly.

**SECTION 12: Ecological information****12.1. Toxicity****General information**

There are no data available on the mixture itself. Do not allow to enter drains or water courses. The mixture has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

**Fish toxicity (Components)****2-Phenoxyethyl acrylate**

LC50	10		mg/l
Duration of exposure	24	h	
Method	OECD 203		

**Daphnia toxicity (Components)**



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**2-Phenoxyethyl acrylate**

Species	Daphnia magna		
EC50	1,21		mg/l
Duration of exposure	48	h	
Method	OECD 202		

**2-Phenoxyethyl acrylate**

Species	Daphnia magna		
EC10	> 0,1		mg/l
Duration of exposure	21	Days	
Method	OECD 211		

**Algae toxicity (Components)**

**2-Phenoxyethyl acrylate**

Species	Desmodesmus		
	4,4		mg/l
Duration of exposure	72	h	
Method	ISO 8692		

**2-Phenoxyethyl acrylate**

Species	Desmodesmus		
EC10	0,71		mg/l
Duration of exposure	72	h	

**Bacteria toxicity (Components)**

**2-Phenoxyethyl acrylate**

Species	activated sludge		
EC50	177		mg/l
Duration of exposure	3	h	
Method	OECD 209		

**12.2. Persistence and degradability**

**General information**

No data available

**Biodegradability (Components)**

**2-Phenoxyethyl acrylate**

Value	22,3		%
Duration of test	28	Days	
Method	OECD 301 D		

**12.3. Bioaccumulative potential**

**General information**

There are no data available on the mixture itself.

**Partition coefficient: n-octanol/water**

Remarks Not applicable

**Octanol/water partition coefficient (log Pow) (Components)**

**2-Phenoxyethyl acrylate**

log Pow	2,58		
Temperature	25	°C	
Method	OECD 117		

**12.4. Mobility in soil**

**General information**

There are no data available on the mixture itself.

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



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**General information**

There are no data available on the mixture itself.

**12.6. Other adverse effects**

**General information**

There are no data available on the mixture itself.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**Disposal recommendations for the product**

Do not allow to enter drains or water courses.

Wastes and emptied containers should be classified in accordance with relevant national regulation.

The European Waste Catalogue classification of this product, when disposed of as waste is

EWC waste code 08 03 12\* waste ink containing dangerous substances

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

For further information contact your local waste authority.

**Disposal recommendations for packaging**

Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers.

Empty containers must be scrapped or reconditioned.

Not emptied containers are hazardous waste (waste code number 150110).

**SECTION 14: Transport information**

**Land transport ADR/RID**

Non-dangerous goods

**14.1. UN number**

UN -

**14.2. UN proper shipping name**

-

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

Class -

Label -

**14.4. Packing group**

Packing group -

Transport category 0

**14.5. Environmental hazards**

-

**Marine transport IMDG/GGVSee**

The product does not constitute a hazardous substance in sea transport.

**14.1. UN number**

UN -

**14.2. UN proper shipping name**

-

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

Class -

Subsidiary risk -

**14.4. Packing group**

Packing group -

**14.5. Environmental hazards**

no

**Air transport ICAO/IATA**



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The product does not constitute a hazardous substance in air transport.

**14.1. UN number**

UN -

**14.2. UN proper shipping name**

-

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

Class -

Subsidiary risk -

**14.4. Packing group**

Packing group -

**14.5. Environmental hazards**

-

**Information for all modes of transport**

**14.6. Special precautions for user**

Transport within the user's premises:

Always transport in closed containers that are upright and secure.

Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Other information**

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

no

**SECTION 15: Regulatory information**

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

**Other information**

The product does not contain substances of very high concern (SVHC).

**Other information**

All components are contained in the TSCA inventory or exempted.

All components are contained in the AICS inventory.

All components are contained in the PICCS inventory.

All components are contained in the DSL or NDSL inventory.

All components are contained in the IECSC inventory.

All components are contained in the NZIOC inventory.

All components are contained in the ENCS inventory.

All components are contained in the ECL inventory.

**15.2. Chemical safety assessment**

For this preparation a chemical safety assessment has not been carried out.

**SECTION 16: Other information**

**Hazard statements listed in Chapter 3**

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

**CLP categories listed in Chapter 3**

Aquatic Chronic 2	Hazardous to the aquatic environment, chronic, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic, Category 3
Eye Irrit. 2	Eye irritation, Category 2
Skin Irrit. 2	Skin irritation, Category 2
Skin Sens. 1	Skin sensitization, Category 1
Skin Sens. 1A	Skin sensitization, Category 1A



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### Supplemental information

Relevant changes compared with the previous version of the safety data sheet are marked with: \*\*\*

This information is based on our present state of knowledge. However, it should not constitute a guarantee for any specific product properties and shall not establish a legally valid relationship.

The information in this Safety Data Sheet is based on the present state of knowledge and current legislation.

It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

The product should not be used for purposes other than those shown in Section 1 without first referring to the supplier and obtaining written handling instructions.

As the specific conditions of use of the product are outside the supplier's control, the user is responsible for ensuring that the requirements of relevant legislation are complied with.

The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation.