# SAFETY DATA SHEET



according to regulation (EU) No 2015/830

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

1.1. Product identifier

Trade name or designation

HF32 Ecoloy TSC

of the mixture

Registration number

**Synonyms** HF32 Ecoloy SnAgCu (Sn; Ag 0,3-4,0% / Cu 0,25-1,0%)

**Product code** 

05-June-2015 Issue date

2.0 Version number

**Revision date** 06-May-2016 Supersedes date 05-June-2015 **Product use** Industrial use

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

Identified uses Soft soldering

Uses advised against Drinking water installations. Use in food industry. Use in medical instruments.

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

STANNOL GmbH Company name

> Haberstr. 24 42551 Velbert Deutschland

Telephone number +49 (0) 2051 3120 - 332 (Mo. - Fr. 08:00 - 16:00)

+49 (0) 2051 3120 - 155 Fax

Homepage www.stannol.de HSE@RLE.de E-mail

+49 (0) 2051 3120 - 332 (Mo. - Fr. 08:00 - 16:00) 1.4 Emergency telephone

number

# **SECTION 2: Hazards identification**

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

The product 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

This product causes no risk or danger to persons and the environment if used as intended. Use of this device that does not comply with the instructions could present risks to human health and the environment. Before using the product read the operating instructions and pay attention to the safety relevant references.

# 2.2. Label elements

## Label according to Regulation (EC) No. 1272/2008 as amended

The alloy does not meet the criteria for labelling according to Regulation (EC) 1272/2008 as amended.

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

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

### 3.2. Mixtures

# **General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Tin	95 - < 100	7440-31-5 231-141-8	01-2119486474-28-XXXX	-	#
Classification:	Not classified				
Silver	1 - < 5	7440-22-4	-	-	#
		231-131-3			
Classification:	Not classified				

Material name: HF32 Ecoloy TSC 4895 Version #: 2.0 Revision date: 06-May-2016 Issue date: 05-June-2015 
 Chemical name
 %
 CAS-No. / EC No.
 REACH Registration No. Index No. Notes
 Notes

 Copper
 0.1 - 1
 7440-50-8 231-159-6
 01-2119480154-42-XXXX

 Classification:
 Not classified

List of abbreviations and symbols that may be used above:

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

**Composition comments** The full text for all H-phrases is displayed in Section 16.

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

**General information**This product causes no risk or danger to persons and the environment if used as intended.

4.1. Description of first aid measures

**Inhalation** Move to fresh air. Call a physician if symptoms develop or 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** Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and

delayed

Nausea, vomiting. Diarrhoea.

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

Treat symptomatically.

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

**General fire hazards**No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing

media

Powder. Dry sand.

Unsuitable extinguishing

media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting

procedures

Use water spray to cool unopened containers.

**Specific methods**Use standard firefighting procedures and consider the hazards of other involved materials.

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

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency

personnel

Keep unnecessary personnel away. 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 discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Stop the flow of material, if this is without risk. 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

Avoid prolonged exposure. Observe good industrial hygiene practices.

handling

7.2. Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Soft soldering

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Material name: HF32 Ecoloy TSC sps uk

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

# 8.1. Control parameters

Occupational exposure limits

UK. EH40 Workplace Exposure Limits (WE
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Components	Type	Value	Form
Copper (CAS 7440-50-8)	STEL	2 mg/m3	Inhalable dusts and mists.
	TWA	1 mg/m3	Inhalable dusts and mists.
		0.2 mg/m3	Fume.
Silver (CAS 7440-22-4)	TWA	0.1 mg/m3	
EU. Indicative Exposure Limit Va	alues in Directives 91/322/EEC	2000/39/EC, 2006/15/EC, 2009	9/161/EU
Components	Туре	Value	
Silver (CAS 7440-22-4)	TWA	0.1 mg/m3	
Tin (CAS 7440-31-5)	TWA	2 ma/m3	

**Biological limit values** 

No biological exposure limits noted for the ingredient(s).

**Recommended monitoring** 

procedures

Follow standard monitoring procedures.

Components	Туре	Route	Value	Form
Adipic acid (CAS 124-04	-9) Consumer	Dermal	19 mg/kg/BW/day	
Comments:	Short term exposure - systemic effects			
<b>0</b>	1 t	Dermal	19 mg/kg/BW/day	
Comments:	Long term exposure systemic effects	Inhalation	65 mg/m3	
Comments:	Short term exposure - systemic effects	iiiiaiaiioii	05 mg/ms	
	отражения отражения от	Inhalation	65 mg/m3	
Comments:	Long term exposure systemic effects			
		Oral	19 mg/kg/BW/day	
Comments:	Short term exposure - systemic effects			
Comments	Long tarm avacquire avetamic effects	Oral	19 mg/kg/BW/day	
Comments:	Long term exposure systemic effects  Professional	Dermal	38 mg/kg/BW/day	
Comments:	Short term exposure - systemic effects	Dermai	30 mg/kg/bvv/day	
	отражения отражения от	Dermal	38 mg/kg/BW/day	
Comments:	Long term exposure systemic effects			
		Inhalation	5 mg/m3	
Comments:	Short term exposure - local effects		<b>5</b>	
Comments:	Long term exposure - local effects	Inhalation	5 mg/m3	
Comments.	Long term exposure - local effects	Inhalation	264 mg/m3	
Comments:	Long term exposure systemic effects	maaton	20 1 mg/mo	
		Inhalation	264 mg/m3	
Comments:	Short term exposure - systemic effects			
Copper (CAS 7440-50-8)	Consumer	Dermal	273	
Comments:	Short term exposure - systemic effects		mg/kg/BW/day	
Comments.	Onort term exposure - systemic enects	Dermal	137	
		201110	mg/kg/BW/day	
Comments:	Long term exposure systemic effects			
•	Observations and a servation of the serv	Inhalation	20 mg/m3	
Comments:	Short term exposure - systemic effects	Inhalation	1 mg/m3	
Comments:	Long term exposure - local effects	IIIIaiation	i ilig/ilis	
	Professional	Dermal	273	
			mg/kg/BW/day	
Comments:	Short term exposure - systemic effects		407	
		Dermal	137 mg/kg/BW/day	
Comments:	Long term exposure systemic effects		g,g, = 11, aaj	
	- , ,			

Components		Туре	Route	Value	Form
_			Inhalation	20 mg/m3	
Comments:	Short term exposure	-			
Rosin, reaction products	s with formaldehyde	Consumer	Dermal	15 mg/kg/BW/day	-
(CAS 91081-53-7)		a avatamsta att			
Comments:	Long term exposure	e systemic effects	Late 1 C	F0.474 ' °	
0	Languitanii	avata t- # 1	Inhalation	52.174 mg/m3	-
Comments:	Long term exposure	e systemic effects			
			Oral	15 mg/kg/BW/day	-
Comments:	Long term exposure	-			
		Professional	Dermal	25 mg/kg/BW/day	-
Comments:	Long term exposure	e systemic effects			
			Inhalation	176.32 mg/m3	-
Comments:	Long term exposure	-			
Tin (CAS 7440-31-5)		Consumer	Dermal	80 mg/kg/BW/day	
Comments:	Short term exposure	e - systemic effects			
			Dermal	80 mg/kg/BW/day	
Comments:	Long term exposure	e systemic effects			
			Inhalation	3.476 mg/m3	
Comments:	Long term exposure	e systemic effects			
			Inhalation	3.476 mg/m3	
Comments:	Short term exposure	e - systemic effects			
			Oral	80 mg/kg/BW/day	
Comments:	Long term exposure	e systemic effects			
			Oral	80 mg/kg/BW/day	
Comments:	Short term exposure	e - systemic effects			
	•	Professional	Dermal	133.3	
				mg/kg/BW/day	
Comments:	Short term exposure	e - systemic effects			
			Dermal	133.3	
				mg/kg/BW/day	
Comments:	Long term exposure	e systemic effects			
			Inhalation	11.75 mg/m3	
Comments:	Short term exposure	e - systemic effects			
			Inhalation	11.75 mg/m3	
Comments:	Long term exposure	e systemic effects			
	-	e systemic effects			
dicted no effect concer	-		Poute	Value	Form
dicted no effect concer Components	ntrations (PNECs)	Туре	Route	Value	Form
dicted no effect concer	ntrations (PNECs)		Freshwater	0.126 mg/l	Form
dicted no effect concer Components	ntrations (PNECs)	Туре	Freshwater Seawater	0.126 mg/l 0.0126 mg/l	Form
dicted no effect concer Components Adipic acid (CAS 124-04	ntrations (PNECs)	Туре	Freshwater	0.126 mg/l	Form
dicted no effect concer Components	ntrations (PNECs)	Туре	Freshwater Seawater Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg	Form
dicted no effect concer Components Adipic acid (CAS 124-04 Comments:	4-9) Fresh water	Туре	Freshwater Seawater	0.126 mg/l 0.0126 mg/l	Form
dicted no effect concer Components Adipic acid (CAS 124-04	ntrations (PNECs)	Туре	Freshwater Seawater Sediment Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg	Form
dicted no effect concer Components Adipic acid (CAS 124-04 Comments:	4-9) Fresh water	Туре	Freshwater Seawater Sediment Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg	Form
dicted no effect concer Components Adipic acid (CAS 124-04 Comments:	4-9) Fresh water	Туре	Freshwater Seawater Sediment Sediment Soil STP	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l	Form
dicted no effect concer Components Adipic acid (CAS 124-04 Comments:	4-9) Fresh water Seawater	Type Not applicable	Freshwater Seawater Sediment Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg	Form
dicted no effect concer Components  Adipic acid (CAS 124-04  Comments:  Comments:	Atrations (PNECs)  4-9)  Fresh water  Seawater  Intermittent release	Type Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l	Form
dicted no effect concer Components Adipic acid (CAS 124-04 Comments:	Atrations (PNECs)  4-9)  Fresh water  Seawater  Intermittent release	Type Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water Freshwater	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l	Form
dicted no effect concer Components  Adipic acid (CAS 124-04  Comments:  Comments:	Atrations (PNECs)  4-9)  Fresh water  Seawater  Intermittent release	Type Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water Freshwater Seawater	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l 7.8 μg/l 5.2 μg/l	Form
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Comments: Comments: Comments: Comments: Comments: Comments:	Fresh water Seawater Intermittent release	Type Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water Freshwater Seawater Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l 7.8 μg/l 5.2 μg/l 87 mg/kg	Form
Comments:	Fresh water Seawater Intermittent release S) Freshwater	Type Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water Freshwater Seawater Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l 7.8 μg/l 5.2 μg/l 87 mg/kg	Form
Comments:	Fresh water Seawater Intermittent release S) Freshwater	Type Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water Freshwater Seawater Sediment	0.126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l 7.8 μg/l 5.2 μg/l 87 mg/kg	Form
dicted no effect concer Components Adipic acid (CAS 124-04 Comments: Comments: Comments: Copper (CAS 7440-50-8 Comments: Comments: Rosin, reaction products	Fresh water  Seawater  Intermittent release  Freshwater  Seawater	Type  Not applicable  Not applicable	Freshwater Seawater Sediment Sediment Soil STP Water Freshwater Seawater Sediment Sediment Sediment	0.126 mg/l 0.0126 mg/l 0.0126 mg/l 0.484 mg/kg 0.0484 mg/kg 0.0228 mg/kg 59.1 mg/l 0.46 mg/l 7.8 µg/l 5.2 µg/l 87 mg/kg 676 mg/kg	Form
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**Form** Components **Type** Route Value Sediment 11.69 mg/kg Seawater Soil 23.2 mg/kg STP 1000 mg/l

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

**General information** Personal protection equipment should be chosen according to the CEN standards and in

discussion with the supplier of the personal protective equipment.

Eye/face protection If contact is likely, safety glasses with side shields are recommended.

Skin protection

- Hand protection For prolonged or repeated skin contact use suitable protective gloves.

Wear suitable protective clothing. - Other

Respiratory protection The emerging solder fumes must be exhausted In case of insufficient ventilation, wear suitable

respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Always observe good personal hygiene measures, such as washing after handling the material Hygiene measures

and before eating, drinking, and/or smoking. Routinely wash work clothing and protective

equipment to remove contaminants.

**Environmental exposure** 

controls

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** 

Solid. Physical state

**Form** Metals in massive form

Metallic. Colour Odour Not available. Odour threshold Not available. Not available. Ha 217 °C (422.6 °F) Melting point/freezing point

Initial boiling point and boiling

range

Not available.

Flash point Not available. Not available. **Evaporation rate** Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower

Not available.

Flammability limit - upper

(%)

Not available.

Vapour pressure Not available. Not available. Vapour density Not available. Relative density

Solubility(ies)

Solubility (water) Not available. Solubility (other) Not available. Not available. Partition coefficient

(n-octanol/water)

Not available. **Auto-ignition temperature** Not available. **Decomposition temperature** Not available. Viscosity **Explosive properties** Not available.

Not available. **Oxidising properties** 

9.2. Other information

7.50 g/cm3 Density

### **SECTION 10: Stability and reactivity**

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

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use.

Contact with incompatible materials. 10.4. Conditions to avoid

10.5. Incompatible materials Acids. Chlorine.

10.6. Hazardous decomposition products No hazardous decomposition products are known.

# **SECTION 11: Toxicological information**

Occupational exposure to the substance or mixture may cause adverse effects. **General information** 

Information on likely routes of exposure

Inhalation Not available. Not available. Skin contact Eye contact Not available. Not available. Ingestion Not available. Symptoms

### 11.1. Information on toxicological effects

Based on available data, the classification criteria are not met. Acute toxicity Skin corrosion/irritation Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Serious eye damage/eye

irritation

Based on available data, the classification criteria are not met. Respiratory sensitisation Skin sensitisation Based on available data, the classification criteria are not met. 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 Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated

exposure

Based on available data, the classification criteria are not met.

Based on available data, the classification criteria are not met.

Based on available data, the classification criteria are not met. **Aspiration hazard** 

Mixture versus substance

information

No information available.

Other information Not available.

# **SECTION 12: Ecological information**

The product is not classified as environmentally hazardous. However, this does not exclude the 12.1. Toxicity

possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.2. Persistence and degradability

12.3. Bioaccumulative potential

Partition coefficient n-octanol

Not available.

/water (log Kow)

**Bioconcentration factor (BCF)** Not available. 12.4. Mobility in soil No data available.

12.5. Results of PBT

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

and vPvB assessment

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### **SECTION 13: Disposal considerations**

13.1. Waste treatment methods

Residual waste 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).

Since emptied containers may retain product residue, follow label warnings even after container is Contaminated packaging

emptied. Empty containers should be taken to an approved waste handling site for recycling or

disposal.

EU waste code The Waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

17 04 07

15 01 06

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow Disposal methods/information

this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches

with chemical or used container. Dispose of contents/container in accordance with

local/regional/national/international regulations.

**Special precautions** Dispose in accordance with all applicable regulations.

### **SECTION 14: Transport information**

**ADR** 

Not regulated as dangerous goods.

**IATA** 

Not regulated as dangerous goods.

**IMDG** 

Not regulated as dangerous goods.

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

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

EU regulations

Restrictions on use

This Safety Data Sheet complies with the requirements of Regulation (EC) No 2015/830. Other regulations

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

Not applicable

**National regulations** Follow national regulation for work with chemical agents.

15.2. Chemical safety

assessment

No Chemical Safety Assessment has been carried out.

# **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 merchandises 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

Material name: HF32 Ecoloy TSC

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.

PICCS: Philippines Inventory of Comm

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).

The classification for health and environmental hazards is derived by a combination of calculation

WoE: Weight of evidence.

WHMIS: Workplace Hazardous Materials Information System.

WHO: World Health Organization.

methods and test data, if available.

wwt: wet weight. Not available.

Information on evaluation method leading to the classification of mixture

nts

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

**Revision information** 

**Training information** 

Disclaimer

References

None.

This document has undergone significant changes and should be reviewed in its entirety.

Follow training instructions when handling this material.

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.

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