Fischer Elektronik GmbH & Co. KG • Nottebohmstr. 28 • D-58511 Lüdenscheid • Tel. +49 (0)2351 /435-0
www.fischerelektronik.de info@fischerelektronik.de

Material Safety Data Sheet

according to 91/155/EEC

1.) Substance / preparation and company name

Product details

Trade name: WLK (liquid epoxy hardener)

Supplier: Fischer Elektronik GmbH & Co. KG
Nottebohmstr. 28 • 58511 Lüdenscheid
Phone:+ 49 (0) 2351/435-0 / Fax. + 49 (0) 2351/45754

Department responsible for information: Technical Service

Emergency Service: National Information Centre, Berlin Emergency call: **+ 49 (0)30 19240**

2.) Composition / Information on ingredients

Chemical characterization (substance)

Description: Aliphatic Polyamine

Hazardous ingredients:

CAS-no.: **4246-51-9**

Designation to EC directive: 4,7,10-Trioxa-1, 13-tridecandiamine

Content: > 90 *Unit: Weight %*

Hazard Symbol: C *R-phrases :* 34

Additional Information: *4,7,10-Trioxa-1, 13-tridecandiamine (EINECS 224-207-2, UN 2735, RTECS ID 6475000, BRN 1760709)*

Material Safety Data Sheet

according to 91/155/EWG

3.) Hazards identification

Definition of hazard: C (caustic)

Special information on the danger to human and environment: Causes burns to eyes, respiratory tract and skin. The product is hazardous to waters.

4.) First aid measures

General information: Consult a physician if problems persist.

In case of inhalation: Breath fresh air, respiration if necessary. Seek medical assistance immediately. **Caution: Danger of burns**

In case of skin contact: Rinse with plenty of water, remove contaminated clothing. Wash carefully using water and soap. Avoid rubbing the skin. Consult a physician if problems persist.

In case of eye contact: Keep eye lids open and rinse for at least 15 minutes with plenty of water. Seek immediately advice of an eye specialist. Protect the eye which has not been in contact with the agent.

In case of ingestion: Do not initiate vomiting. The patient should drink plenty of water, if conscious. Get medical assistance immediately.

Information to physician: Symptomatic treatment, see also safety specification sheet.

5.) Fire fighting measures

Suitable extinguishing media: Carbon dioxide, extinguishing powder, foam (resistant to alcohol), water spray jet

Extinguishing media which may not be used for safety reasons: N/A

Special exposure hazards arising from the substance of preparation itself, combustion products, resulting gases:

Carbon monoxide (CO), carbon dioxide (CO_2), nitrogen oxides, pyrolysis products (smoke). In case of fire, closed containers may burst.
Cool with water.

Special protective equipment: Chemical-resistant protective clothing including a breathing mask with its own air supply

Fischer Elektronik GmbH & Co. KG • Nottebohmstr. 28 • D-58511 Lüdenscheid • Tel. 02351/435-0
www.fischerelektronik.de info@fischerelektronik.de

Material Safety Data Sheet

according to 91/155/EWG

6.) Accidental release measures

Personal precautions:	Ventilate the area or suck the air off using mobile equipment. Wipe or absorb the liquid using a vermiculite type of material. Use protective clothing including goggles, gloves and shoes.
Environment precautions:	Seal off the area, close the source of the leak, if possible. Ventilate and suck the air off. Do not allow to enter drains/surface water/ground-water.
Methods for cleaning up:	Collect spillage, remove residue using an absorbent. Clean with soapy water. Take up mechanically, placing in appropriate containers for disposal.
Additional information:	

7.) Handling and storage

Handling

Advice on safe handling:	Do not breath gas/fume/vapour/spray. Avoid contact with skin and eyes.
Protections against fire and explosion:	In the event of fire, containers should be cooled with water. The product is not explosive hazardous.

Storage

Requirements for storage rooms and vessels:	Store containers in a cool, dry and ventilated area. Containers must be tightly closed. Keep them off flames and away from sources of heat.
Hints on storage assembly:	Do not store together with acids, oxydisers and alkylating agents.

Further information on storage conditions: Keep away from food, drink and animal feeding-stuffs.

Storage class:	8; caustic substances (directive for storage together with VCI chemicals)

Material Safety Date Sheet

according to 91/155/EWG

8.) Exposure controls and personal protection

Additional information for technical equipment: Ensure adequate ventilation by local air Extraction or by a general exhaust system.

Components, workplace-related limiting values which must be monitored:

CAS-no.	Substance name	Type	Value	Remark	Unit
4246-51-9	4,7,10-Trioxa-1,13-tridecandiandiamine		no exposure limit value		

Additional information: The substance is not quoted in the list of limit values TRGS 90. However, in view of its properties, concentration at the workplace should be minimised. Aerosol formation should be avoided.

Personal protection equipment:

General protective and hygienic measures: Wash before breaks and after finishing work.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection: Wear PVC gloves. .

Eye protection: Wear face protection and tightly fitting goggles.

Protective clothing: Wear protective clothing. An emergency shower should be available.

Fischer Elektronik GmbH & Co. KG • Nottebohmstr. 28 • D-58511 Lüdenscheid • Tel. 02351/435-0
www.fischerelektronik.de info@fischerelektronik.de

Material Safety Data Sheet

according to 91/155/EWG

9.) Physical and chemical properties

Form: liquid
Odour: like amine
Colour: clear to amber

Change of condition	Values	Unit	Method (67/548)
Type (1) Melting point/melting range:	not determined		
Type (2) Boiling point/boiling range:	not determined		
Flash point:	139	°C	
Flammability (solid, gaseous):		*°C*	
Ignition temperature:	not determined		
Autoflammability:	the product is not auto flammable		
Explosive properties:	the product is not explosive		
Explosion limits: UEG OEG	not determined		
Vapour pressure at (T1)	< 0,001	hPa	(20 °C)
Density at (T1)	1.01	g/cm³	(20 °C)
Solubility: soluble in water	not determined		
ph-value:	not determined		
Distribution coefficient n-$C_8H_{17}OH/H_2O$ comp.:	not determined		
Viscosity dynamic:	not determined		
Solvent separation test:	no measurable separating layer		
Solvent content:	> 90 %		
Other information:	no information		

Material Safety Data Sheet

according to 91/155/EWG

10.) Stability and reactivity

Conditions to avoid:	Heat, sources of ignition
Materials to avoid:	Oxidisers, acids and alkali metals
Hazardous decomposition products:	Carbon monoxide, carbon dioxide, nitrogen oxides and other organic decomposition products.
Additional information:	When the product is used as intended, hazardous decomposition products or undesirable reactions (polymerisation) will not occur. Make sure that the product is handled and stored in an appropriate manner.

Material Safety Data Sheet

according to 91/155/EWG

11.) Toxicological information

Acute toxicity

Type	Values	Species	Method
oral	3160 mg/kg	rat	LD 50
dermal	2500 mg/kg	rabbit	LD 50

Specific symptoms in animal studies: no data available

Primary cauterising/ caustic effect: Causes burns to eyes, skin and respiratory tract.

Sensitising effect: Respiratory tract is affected!

Other information (concerning experimental toxicology): no indication.

Sabacute to chronic toxicity

Investigation:
Species max. dose mg/kg Method

Result: no data available

Experience with human: When in contact with eyes, the product causes damage to the cornea and burns. Permanent opacity or blindness may result. On the skin, the product may cause severe burns and blisters. Vapours or aerosols inhaled may cauterise the respiratory tract and cause nausea and headaches. Furthermore, symptoms such as tightness of the chest, asthma-like symptoms and difficulties in breathing may occur. The product is detrimental to health when swallowed and may cause burns in the mouth and in the gastro-intestinal tract. The product may aggravate existing cauterised areas of skin, eyes and respiratory tract.

Additional toxicological information (especially for preparation): no indication

Material Safety Data Sheet

according to 91/155/EWG

12.) Ecological information:

Information about elimination (persistence and degradation)

Method: no indication
Analyses:

Degree of elimination: no indication
Classification:

Evaluation text: no indication

Other information: none

Behaviour in environment compartments

Component: no indication

Mobility and biological accumulation potential: no indication

Other information: no indication

Ecotoxic effects

Aquatic toxicity:

Kind of test	Effective concentration	Method	Evaluation

Remark: no indication

Behaviour in sewage treatment plants:

Kind of test	Effective concentration	Method	Evaluation

Remark: no indication

Material Safety Data Sheet
according to 91/155/EWG

Other information:

Other ecological information

CSB value:	*mg/g*	*Remark:* no indication
BSB_5 value:	*mg/g*	*Remark:* no indication
AOX information:		*Remark:* no indication

Contains the following heavy metals and bonds as per EC Directive no. 76/464/EEC, as provided for in the recipe: none

General information: Prevent the liquid from entering rivers and lakes, sewage systems or soil. Hazard to drinking water. The product is incompatible with water.

13.) Disposal considerations

Product:

Recommendation: Dispose of waste according to applicable with local regulations. Do not dispose of it together with household waste. Waste requires monitoring, in accordance with § 41 of the law on recirculation of materials and waste (Kreislaufwirtschafts-/ Abfallgesetz)

Classification according to Directive 75/442/EEC:	*EWC code:*	*EW designation:*
	070104	Other organic solvents

Packaging: Cured material can be disposed into normal household waste in accordance with local legal regulations (EWG-code: 200301)

Uncleaned packages

Recommendation: Handle contaminated packaging in the same way as the substance itself. Cleaned packages may be reused / recycled.

Recommended cleaning agents: no indication

Material Safety Data Sheet

according to 91/155/EWG

14.) Transport regulations

Land transport ADR / RID (road-rail)

Class as per ADR/RID-GGVS/E:	8
Packaging group:	II
Hazard no.	80
UN no.:	2735
Designation of goods:	2735 polyamine, liquid, caustic, n.o.s., (4,7,10-Trioxa-1, 13-tridecandiamin),8, VG II
Remarks:	hazard label no.8, special provisions 274, LQ 22

Inland waterway craft ADN/ADNR

Class as per ADN/R:	8
Packaging group:	II
Category:	
Designation of goods:	2735 polyamine, liquid, caustic, n.o.s., (4,8,20-Trioxa-1, 13-tridecandiamin), 8, VG II
Remarks:	hazard label no. 8, special provisions 274, LQ 22

Marine transport IMDG

Class as per IMDG/GGV Sea:	8
UN no. :	2735
PG :	II
EMS no. :	F-A, S-B
MFAG:	320
Marine pollutant:	yes
Correct technical designation:	Polyamines, liquid, corrosive, n.o.s., 4,7,10-Trioxa-1 13-tridecanediamine
Remark:	Loading category A; IMDG code page 8103

Air transport ICAO-TI and IATA-DGR

Class as per C ICAO/IATA:	8
UN/ID no.:	2735
PG:	II
Correct shipping designation:	Polyamines, liquid, corrosive, n.o.s. (4,7,10-Trioxa-1, 13-tridecanediamine)
Remark:	CAO 812, PAX 808

Transport / additional information: none

Fischer Elektronik GmbH & Co. KG • Nottebohmstr. 28 • D-58511 Lüdenscheid • Tel. 02351/435-0
www.fischerelektronik.de info@fischerelektronik.de

Material Safety Data Sheet
according to 91/155/EWG

15.) Regulatory information

Marking in accordance with the EEC regulations / guideline (GefStoffV)
Hazards symbol and hazard statement of dangerous substances and preparations:
C (caustic)

Hazardous component(s) for labelling: 4,7,10-Trioxa-1, 13-tridecandiamine

R-phrases:	34	Causes burns
S-phrases:	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	45	In case of accident or if you feel unwell, seek medical advice immediately.

Special marking of specific recipes: none

National regulations

Additional classification according to GefStoffV appendix II no: none
(only applicable in case of deviation from the EC classification)

Information on restrictions imposed on occupation: see § 8 - 10 GefStoffV

Störfallverordnung: no indication
(accident regulation)

Classification to VbF : N/A

Protection against emission (TA-Luft): no indication

Water hazard class(WGK) : 2 (hazardous to water, self-assessment)

Other prescriptions, restrictions and bans;
VBG 1; ZH 1/24.2, 132; TRGS 440,555; WHG; VwVwS
TRGS 200, Classification of materials, recipes and products
TRGS 220; Safety specification sheet for hazardous materials and recipes
TRGS 900; Limit values in the atmosphere at the workplace Air limit values
Prescription on hazardous goods
Law on recirculation of materials and waste (Kreislaufwirtschafts-/ Abfallgesetz)

Fischer Elektronik GmbH & Co. KG • Nottebohmstr. 28 • D-58511 Lüdenscheid • Tel. 02351/435-0
www.fischerelektronik.de info@fischerelektronik.de

Material Safety Data Sheet

according to 91/155/EWG

16.) Other

The information contained in this safety specification sheet reflects our present technical knowledge and satisfies legal requirements at national and EC level. The users' working conditions, however, are not known to us and are beyond our control. Users are responsible for observing all applicable legal provisions. The information contained in this specification sheet describes the safety requirements applicable to our product and implies no guarantee of the properties of the product.