MATERIAL SAFETY DATA SHEET

In accordance with regulation (EC) 1907/2006 (REACH)

Hardener HG 356

Date of Issue: 28-01-2004 **Date of revision: 25-01-2013** **Version: 2.0**

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

Trade name: **Hardener HG 356**

Supplier:

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SECTION 2: Hazards identification

2.1 Label elements according to Regulation (EC) No 1272/2008 – CLP

Hazard pictograms: Signal word: **DANGER**

GHS05

GHS07

Hazard statements, H

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements, P

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P310	Immediately call a poison control center or doctor/physician.

2.2 Label elements according to Directive 67/548/EHS, 1999/45/EC

Symbols:

 **Xn –** Harmful

 **C** – Corrosive

Risk phrases (R)

R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R34	Causes burns.
R36/37/38	Irritating to eyes, respiratory system and skin.
R43	May cause sensitisation by skin contact.

Safety phrases (S)

S23	Do not breathe vapour.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S24/25	Avoid any inhalation, contact with skin and eyes. Wear suitable protective clothing and gloves
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
S53	Avoid exposure - obtain special instructions before use
S61	Avoid release to the environment. Refer to special instructions/safety data sheet

2.3 Classification substance/mixture according to Regulation (EC) No 1272/2008 – CLP

CAS No 2855-13-2	**CAS No 9046-10-0**	**CAS No 100-51-6**
Acute Tox. 4 Acute Tox. 4 Skin corrosion (Cathegory 1B) Skin sensitization (Cathegory 1) Acute aquatic toxicity (Cathegory 3)	Skin corrosion (Cathegory 1B)	Acute Tox. 4 Acute Tox. 4

2.4 Classification substance/mixture according to Directive 67/548/EHS, 1999/45/EC

- Causes burn. Harmful in contact with skin and if swallowed. May cause allergic skin reaction. Toxic to aquatic life, may cause long lasting harmful effects to aquatic life.
- Harmful if inhalated and if swallowed.

SECTION 3: Composition/information on ingredients

Chemical characteristic: mixture of polyamines and aromatic alcohol.
Recommended application: hardener for laminating epoxy resin.
Description: mixture of substances listed below with nonhazardous additives.

MIXTURE		*according to Reg. No 1278/2008 (CLP)*	*according to Dir. 67/548/EHS, 1999/45/ES*
> 45%	**Isophorone diamine**		
CAS No:	2855-13-2	GHS05, GHS07	C
EC No:	220-666-8	H302, H312, H314, H317, H412	R21/22, R34, R43, R52/53
Index No:	612-067-00-9	P273, P280, P305+351+338, P310	S26, S36/37/39, S45, S61
< 40%	**Poly(propylene glycol) bis(2-aminopropyl ether)**		
CAS No:	9046-10-0	GHS05	C
EC No:	-	H314	R34
Index No:	-	P280, P305+351+338, P310	S26, S36/37/39, S45

< 20%	**Benzyl alcohol**		
CAS No: *EC No:* *Index No:*	100-51-6 202-859-9 603-057-00-5	GHS07 H302, H332 -	Xn R20/22, R23/24/25, R36/37/38, R40, R43, R45, R63 S23, S26, S24/25, S36, S37, S53

SECTION 4: First aid measures

Description of first aid measures

General notes:
Remove parts of the clothes that have been soiled with the product. In case of respiratory arrythmia or apneusis provide artificial respiration.

Following inhalation: Sufficient supply of fresh air and to be sure call for a doctor. In case of unconsciousness place patient stybly in side position for transportation.

Following skin contact: Immediately wash with water and soap and rinse throughly. Call for a doctor immediately.

Following eye contact: Rinse opened eyes for several minutes under running water. Call for a doctor immediately.

Following ingestion: Rinse mouth immediately and drink plenty of water. Sufficient supply of fresh air. Do not evoke vomiting. Call for a doctor immediately.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media: carbon dioxide (CO2), water aerosol, foam, extinguishing powder.
Unsuitable extinguishing media: water flow.

5.2 Special hazards arising from the substance or mixture
No data

5.3 Advice for firefighters
Special protective equipment
Wear protective breathing apparaturs. Wear complete protective clothing.

5.4 Further information
Contaminated water used for fire-fighting has to be properly collected and must not enter sewers

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Ensure sufficient ventilation. Wear protective equipment. Keep unprotected people in a safe distance.

6.2 Environmental precautions:
Do not allow to enter sewers/surface or ground water. Inform respective authorities in case of seepage into water course or sewage systems.

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, earth, acid binders, universal binders, sawdust). Dispose contaminated material as a waste according to local directives.

6.4 Reference to other section:
Information about the personal protection see section 8.

SECTION 7: Handling and storage

7.1 Handling
Precautions for safe handling:
Keep receptacles tightly sealed. Ensure sufficient ventialtion/exhaustion at workplace. Open and handle receptacles with care.
Information about fire and exlosion protection:
Do not allow the product to get nearby ignition source – no smoking. Make a precaution against electrostatic charge occurance.

7.2 Storage
Conditions for safe storage, including any incompatibilities:
Store only in well-sealed, original receptacles at dry and cold place. Store separately from foodstuff.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
The product does not contain any relevant amount of ingredients that influence workplace and there is no need of monitoring the limit values.

PNEC/DNEL
No data

8.2 Exposure controls

Personal protective equipment - general protective any hygienics measures:
Immediately remove all soiled and contaminated clothing.
Keep away from foodstuffs, beverages and feed.
Separate storage of the protective clothing.
Wash hands before breaks and at the end of work.
Avoid contact with eyes and skin.
Do not inhale gases, vapours and aerosols.
Do not eat and drink during work.

Respiratory protection:	In case of short-term exposure and weak contamination a respiratory protection needed. In case of long-term exposition and intense contamination a self-sufficient breathing apparatus to be used.
Hands protection	Protective gloves. Material of which the gloves are made: PVC, Nitride rubber (NBR). Selection of suitable gloves does not depend only on material, but also their quality, which is different according to individual producers. Butyl rubber (BR), Nitride rubber (NBR). The exact period of penetration has to be checked with the producer of gloves and it needs to be monitored.
Eye protection	Tightly sealed protective goggles.
Body protection	Protective clothing.

8.3 Further warning

For producers valid data serve as source. Handle in accordance with correct industrial, hygienic and safety procedures.

SECTION 9: Physical and chemical properties

Form:	liquid
Appearance:	transparent
Odour:	amine
pH value:	11,6 (10 g/l, 20˚C)
Melting point:	135°C

Initial boiling point/boiling range:	No data
Flash point:	110°C
Flammability:	No data
Lower flammability or explosive limits:	No data
Upper flammability or explosive limits:	No data
Vapour pressure (20°C):	< 1,2 Pa
Vapour density (25°C):	0,95 – 0,98 g/cm3
Solulibility in/Miscibility with water:	soluble
Solulibility in organic solvent:	No data
Partition coefficient n-oktanol/water:	No data
Auto-ignition temperature:	not auto-igniting
Decomposition temperature:	> 200 ˚C
Dynamic viscosity 20°C:	10 – 20 mPas
Kinematic viscosity:	No data
Explosive properties:	product does not present an explosion hazard
Flamabletemperature:	No data
Content of solid:	No data

SECTION 10: Stability and reactivity

10.1 Reactivity	No decomposition if used according to specifications.
10.2 Chemical stability	No decomposition if used according to specifications**.**
10.3 Possibility of hazardous reactions	Reactions with strong acids and alkali. Reactions with strong oxidants.
10.4 Conditions to avoid	No data
10.5 Incompatible materials	No data
10.6 Hazardous decomposition products	Carbon dioxide, carbon monoxide, Nitrous oxides (NOx), organic gases and vapours.

SECTION 11: Toxicological information

11.1 Acute toxicity:
Values LD/LC50 decide about classificatio (LD50 = fatal dose, LC50 = fatal concentration):

2855-13-2 **Isophorone diamine**

LD50	oral:	1.030 mg/kg (rat)

9046-10-0 **Poly(propylene glycol) bis(2-aminopropyl ether)**

LD50	oral:	2.880 mg/kg
LD50	dermal:	2.980 mg/kg

100-51-6 **Benzylalcohol**

LD50	oral:	1.230 mg/kg (rat)
LD50	dermal:	2.000 mg/kg (rabbit)

11.2 Primary irritant effect

On the skin: strong corrosive effect to skin and mucous membranes.
On the eye: strong corrosive effect to eyes.
Senzitization: senzitization possible in case of skin contact.

11.3 Further toxicological information

Germ cell mutagenicity: *Not evaluated at this time.*
Carcinogenicity: *Not evaluated at this time.*
Reproductive toxicity: *Not evaluated at this time.*

Evolution toxicity: *Not evaluated at this time.*

SECTION 12: Ecological information

12.1 Toxicity
Very toxic to aquatic life.

Fish	*Leuciscus idus*	LC50/96 hours	110 mg/l
Crustacea	*Daphnia magna*	EC50/24 hours	55 mg/l
Algae/aquatic plants	*Scenedesmus subspicatus*	EC50/72 hours	37 mg/l
Microorganisms	*Pseudomonas pudita*	-	-

12.2 Persistence and degradability
-
12.3 Bioaccumulative potential
-
12.4 Mobility in soil
-

12.5 Results of PBT and vPvB assessment

According to appendix XIII of Regulation (EC) No 1907/2006 (REACH): this mixture does not contain any substances that are assessed to be PBT.
According to appendice XIII of Regulation (EC) No 1907/2006 (REACH): this mixture does not contain any substances that are assessed to be vPvB.

12.6 Other adverse effects
Very toxic to aquatic life. Very toxic to environment: May cause long lasting harmful effects to aquatic life. Do not allow product to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

Waste treatment methods

Must be disposed in accordance with local directives to a special processing. Uncleaned packaging must be disposed at the same way as the product it contains.

SECTION 14: Transport Information

ADR/RID – Land transport

Hazard class:	8 – corrosive substances
Packing group:	III
UN-Number (OSN):	UN 2735
Hazard label:	80
Proper shipping name:	Amines, liquid, corrosive, n.o.s. - *Polyamine*

IMDG - Sea transport

Hazard class:	8 – corrosive substances
Packing group:	III
UN-Number (OSN):	UN 2735
Hazard label:	80
Proper shipping name:	Amines, liquid, corrosive, n.o.s. - *Polyamine*
Marine pollutant:	NO

IATA-DGR – Air transport

Hazard class:	8 – corrosive substances
Packing group:	III
UN-Number (OSN):	UN 2735
Hazard label:	80
Proper shipping name:	Amines, liquid, corrosive, n.o.s. - *Polyamin*

SECTION 15: Regulatory information

Label	**Trade name:**	Hardener for laminating epoxy resin
	Label elements:	DANGER - HGS05, GHS07(C, Xn)
	Mixture of substances:	Isophoronediamine, Poly(propylene glycol) bis(2-aminopropyl ether), Benzyl alcohol

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

- The product has been classified and marked in accordance with EU Directives/Ordinance on hazardous materials.
- The product is classified according to Act No 356/2003 Coll., on chemical substances and chemical preparations and amendments to certain legislation as hazsrdous material.
- Act No. 258/2000 Coll., on public health protection and on amendment of certain acts, as amended and Regulation No. 361/2007 Coll., determining conditions for occupational health protection.
- Act No. 477/2001 Coll., on packaging and on amending some Acts (Act on Packaging).
- ČSN 65 0201 a ČSN 65 6060.

SECTION 16: Other information

For full version of classification substance/mixture see section 2 and 3.