



Material Safety Data Sheet

according to Regulation (EC) No. 1907/2006

1. Identification of the substance/mixture and of the company/undertaking

Product:	Hardener S
Manufacturer:	Conrad Electronic SE
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date:	28.02.2019

1.1. Product identifier

Hardener S

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

Use of the substance/mixture

Adhesives, sealants

Hardener (Crosslinker)

2. Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Corr. 1A

Serious eye damage/eye irritation: Eye Dam. 1

Respiratory or skin sensitisation: Skin Sens. 1

Reproductive toxicity: Repr. 2

Hazardous to the aquatic environment: Aquatic Chronic 2

Hazard Statements:

Harmful if swallowed.

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause an allergic skin reaction.

Suspected of damaging the unborn child.

Toxic to aquatic life with long lasting effects.



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2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

Phenol, styrenated

2,2,4-trimethylhexane-1,6-diamine

m-phenylenebis(methylamine)

Phenol, methylstyrenated

Salicylic acid

Polyoxypropylenediamine

Signal word: Danger

Pictograms:



Hazard statements

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P405	Store locked up.
P501	Dispose of waste according to applicable legislation.

2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.



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3. Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No.	Chemical name			Quantity
	EC No.	Index No.	REACH No.	
	GHS Classification			
61788-44-1	Phenol, styrenated			25-50%
	262-975-0		01-2119979575-18	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			
25513-64-8	2,2,4-trimethylhexane-1,6-diamine			10-25%
	247-063-2		01-2119560598-25	
	Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H302 H314 H317 H412			
1477-55-0	m-phenylenebis(methylamine)			10-25%
	216-032-5			
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H332 H302 H314 H317 H412 EUH071			
68512-30-1	Phenol, methylstyrenated			10-25%
	270-966-8		01-2119555274-38	
	Acute Tox. 4, Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 3; H312 H315 H317 H412			
69-72-7	Salicylic acid			2,5-10%
	200-712-3	607-732-00-5	01-2119486984-17	
	Repr. 2, Acute Tox. 4, Eye Dam. 1; H361d H302 H318			
9046-10-0	Polyoxypropylenediamine			2,5-10%
	618-561-0		01-2119557899-12	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Aquatic Chronic 3; H302 H314 H318 H412			

Full text of H and EUH statements: see section 16.



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Specific Conc. Limits, M-factors and ATE

CAS No.	EC No.	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
61788-44-1	262-975-0	Phenol, styrenated	25-50%
	dermal: LD50 = 3166 mg/kg; oral: LD50 = 2197 mg/kg		
25513-64-8	247-063-2	2,2,4-trimethylhexane-1,6-diamine	10-25%
	oral: LD50 = 1200 mg/kg		
1477-55-0	216-032-5	m-phenylenebis(methylamine)	10-25%
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 => 3100 mg/kg; oral: LD50 = 980 mg/kg		
68512-30-1	270-966-8	Phenol, methylstyrenated	10-25%
	dermal: ATE = 1100 mg/kg; oral: LD50 = 3600 mg/kg		
69-72-7	200-712-3	Salicylic acid	2,5-10%
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = 891 mg/kg		
9046-10-0	618-561-0	Polyoxypropylenediamine	2,5-10%
	dermal: LD50 = 2090 mg/kg; oral: LD50 = 475 mg/kg		

4. First aid measures

4.1. Description of first aid measures

General information

Remove contaminated clothing immediately.

After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Drink plenty of water and fresh air. Call a doctor immediately

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

No information available.

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

Treat symptomatically.



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5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Extinguishing powder, Water spray.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire: Formation of: Gases/vapours, toxic

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

Avoid contact with skin, eyes and clothes. Wearing a personal protective clothing.

For non-emergency personnel

No information available.

For emergency responders

No information available.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter the soil or subsoil.

6.3. Methods and material for containment and cleaning up

For containment

No information available.

For cleaning up

No information available.

Other information

Provide adequate ventilation. Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal .

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13



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7. Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Provide adequate room ventilation, if necessary with vapour extraction at the workplace.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep/Store only in original container. Provide for retaining containers, eg. floor pan without outflow.

Advice on storage compatibility

Store separately from foodstuffs.

Further information on storage conditions

Keep receptacles tightly sealed.

7.3. Specific end use(s)

Adhesives, sealants

Hardener (Crosslinker)



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8. Exposure controls/personal protection

8.1. Control parameters

PNEC values

CAS No.	Substance	Value
	Environmental compartment	
25513-64-8	2,2,4-trimethylhexane-1,6-diamine	
	Freshwater	0,0295 mg/l
	Marine water	0,00295 mg/l
69-72-7	Salicylic acid	
	Freshwater	0,2 mg/l
	Marine water	0,02 mg/l

8.2. Exposure controls



Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Suitable material: NBR (Nitrile rubber) FKM (fluoro rubber) (Viton)

Thickness of the glove material: $\geq 0,5$ mm

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Filter type: A-P2



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9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	Light yellow
Odour:	Amines
pH-Value:	not applicable

Changes in the physical state

Melting point:	not determined
Initial boiling point and boiling range:	> 200 °C
Flash point:	> 100 °C

Flammability

Solid/liquid:	not applicable
Gas:	not applicable

Explosive properties

The product is: not explosive according to EU A.14

Lower explosion limits:	1,2 vol. %
Upper explosion limits:	not determined
Auto-ignition temperature:	240 °C

Self-ignition temperature

Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined

Oxidizing properties

Not oxidizing.

Vapour pressure: (at 20 °C)	4 hPa
Density (at 23 °C):	1,038 g/cm ³ ISO 2811
Water solubility:	immiscible

Solubility in other solvents

not determined

Partition coefficient n-octanol/water:	not determined
Viscosity / dynamic: (at 25 °C)	240 mPa·s ISO 3219
Relative vapour density:	not determined
Evaporation rate:	not determined

9.2. Other information

No information available



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10. Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

No decomposition when stored and handled properly

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

10.5. Incompatible materials

Oxidising agent, strong

10.6. Hazardous decomposition products

No known hazardous decomposition products.

In case of fire may be liberated: toxic and caustic gases and vapours



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11. Toxicological information

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

Acute toxicity

Harmful if swallowed.

ATEmix calculated

ATE (oral) 1597,6 mg/kg

CAS No.	Chemical name				
	Exposure route	Dose		Species	Source
61788-44-1	Phenol, styrenated				
	oral	LD50	2197 mg/kg	Rat	Quantitative structure-activity relationship (QSAR)
	dermal	LD50	3166 mg/kg	Rat	Quantitative structure-activity relationship (QSAR)
25513-64-8	2,2,4-trimethylhexane-1,6-diamine				
	oral	LD50	1200 mg/kg	Rat	IUCLID
1477-55-0	m-phenylenebis(methylamine)				
	oral	LD50	980 mg/kg	Rat	OECD 401
	dermal	LD50	> 3100 mg/kg	Rat	IUCLID
	inhalative vapour	ATE	11 mg/l		
	inhalative aerosol	ATE	1,5 mg/l		
68512-30-1	Phenol, methylstyrenated				
	oral	LD50	3600 mg/kg	Rabbit	
	dermal	ATE	1100 mg/kg		
69-72-7	Salicylic acid				
	oral	LD50	891 mg/kg	Rat	Manufacturer
	dermal	LD50	> 2000 mg/kg	Rat	Manufacturer
9046-10-0	Polyoxypropylenediamine				
	oral	LD50	475 mg/kg	Rat	Manufacturer
	dermal	LD50	2090 mg/kg	Rabbit	Manufacturer



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Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (Phenol, styrenated; 2,2,4-trimethylhexane-1,6-diamine; m-phenylenebis(methylamine); Phenol, methylstyrenated)

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of damaging the unborn child. (salicylic acid)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

11.2. Information on other hazards

Endocrine disrupting properties

No information available.



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12. Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects.

CAS No.	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	
61788-44-1	Phenol, styrenated					
	Acute fish toxicity	LC50	4 mg/l	96 h	Pimephales promelas (fathead minnow)	Quantitative structure-activity relationship (QSAR)
	Acute algae toxicity	ErC50	1,637 mg/l	72 h	Pseudokirchneriella subcapitata	Quantitative structure-activity relationship (QSAR)
	Acute crustacea toxicity	EC50	1,878 mg/l	48 h	Daphnia magna	Quantitative structure-activity relationship (QSAR)
25513-64-8	2,2,4-trimethylhexane-1,6-diamine					
	Acute algae toxicity	ErC50	29,5 mg/l	72 h	Desmodesmus subspicatus	IUCLID
1477-55-0	m-phenylenebis(methylamine)					
	Acute fish toxicity	LC50	87,6 mg/l	96 h	Oryzias latipes (Ricefish)	OECD 203
	Acute algae toxicity	ErC50	20,3 mg/l	72 h	Pseudokirchneriella subcapitata	OECD 201
	Acute crustacea toxicity	EC50	35,1 mg/l	48 h	Daphnia magna	OECD 202
	Crustacea toxicity	NOEC	4,7 mg/l	21 d	Daphnia magna	OECD 211
68512-30-1	Phenol, methylstyrenated					
	Acute fish toxicity	LC50	25,8 mg/l	96 h		
	Acute algae toxicity	ErC50	15 mg/l	72 h	Scenedesmus subspicatus	
	Acute crustacea toxicity	EC50	14-51 mg/l	48 h	Daphnia magna	
69-72-7	Salicylic acid					
	Acute fish toxicity	LC50	1370 mg/l	96 h	Pimephales promelas (fathead minnow)	Manufacturer
	Acute algae toxicity	ErC50	> 100 mg/l	72 h	Scenedesmus subspicatus	Manufacturer
	Acute crustacea toxicity	EC50	870 mg/l	48 h	Daphnia magna	Manufacturer
9046-10-0	Polyodpropylenediamine					
	Acute fish toxicity	LC50	> 100 mg/l	96 h	Piscis	Manufacturer
	Acute algae toxicity	ErC50	135 mg/l	72 h	Scenedesmus subspicatus	Manufacturer
	Acute crustacea toxicity	EC50	15 mg/l	48 h	Daphnia magna	Manufacturer



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12.2. Persistence and degradability

The product has not been tested.

CAS No.	Chemical name			
	Method	Value	d	Source
	Evaluation			
61788-44-1	Phenol, styrenated			
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	73 %	14	
	Readily biodegradable (according to OECD criteria).			
25513-64-8	2,2,4-trimethylhexane-1,6-diamine			
	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A	7%	28	
	Not readily biodegradable (according to OECD criteria)			
1477-55-0	m-phenylenebis(methylamine)			
	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	49 %	28	
	Not readily biodegradable (according to OECD criteria)			

12.3. Bioaccumulative potential

The product has not been tested.

BCF

CAS No.	Chemical name	BCF	Spezies	Quelle
61788-44-1	Phenol, styrenated	26,5	Carassius auratus (goldfish)	Quantitative structure-activity relationship (QSAR)
1477-55-0	m-phenylenebis(methylamine)	3,16		Data obtained by analogy conclusion, e.g. QSAR.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

not applicable

12.6. Endocrine disrupting properties

No information available.

12.7. Other adverse effects

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.



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13. Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

14. Transport information

Land transport (ADR/RID)

14.1. UN Number:

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S.
(mphenylenebis(methylamine), Phenol, styrolisiert)

14.3. Transport hazard class(es):

8

14.4. Packing group:

II

Hazard label:

8



Classification code:

C7

Special Provisions:

274

Limited quantity:

1 L

Transport category:

2

Hazard No:

80

Tunnel restriction code:

E

Other applicable information (land transport)

Excepted quantity:


E2




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Inland waterways transport (ADN)

14.1. UN Number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (mphenylenebis(methylamine), Phenol, styrolisiert)
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8 
Classification code:	C7
Special Provisions:	274
Limited quantity:	1 L
Other applicable information (inland waterways transport)	
Excepted quantity:	E2

Marine transport (IMDG)

14.1. UN Number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (mphenylenebis(methylamine), Phenol, styrolisiert)
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8 
Marine pollutant:	P
Special Provisions:	274
Limited quantity:	1 L
EmS:	F-A, S-B
Segregation group:	alkalis
Other applicable information (marine transport)	
Excepted quantity:	E2



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Air transport (ICAO)

14.1. UN Number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (mphenylenebis(methylamine), Phenol, styrolisiert)
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8



Special Provisions:	A3 A803
Limited quantity Passenger:	0.5 L
IATA-packing instructions - Passenger:	851
IATA-max. quantity - Passenger:	1 L
IATA-packing instructions - Cargo:	855
IATA-max. quantity - Cargo:	30 L

Other applicable information (air transport)

Excepted quantity:	E2
Passenger-LQ:	Y840

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: yes



Danger releasing substance: Phenol, styrenated

14.6. Special precautions for user

Warning: Corrosive

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable



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15. Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII): Entry 3

2010/75/EU (VOC): $\leq 10\%$

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 2 - obviously hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

16. Other information

Abbreviations and acronyms

LP: Classification, labelling and Packaging

REACH: Registration, Evaluation and Authorization of Chemicals

GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals

UN: United Nations

CAS: Chemical Abstracts Service

DNEL: Derived No Effect Level

DMEL: Derived Minimal Effect Level

PNEC: Predicted No Effect Concentration

ATE: Acute toxicity estimate

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

LL50: Lethal loading, 50%

EL50: Effect loading, 50%

EC50: Effective Concentration 50%

ErC50: Effective Concentration 50%, growth rate

NOEC: No Observed Effect Concentration

BCF: Bio-concentration factor

PBT: persistent, bioaccumulative, toxic

vPvB: very persistent, very bioaccumulative



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ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Regulations concerning the international carriage of dangerous goods by rail

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)

IMDG: International Maritime Code for Dangerous Goods

EmS: Emergency Schedules

MFAG: Medical First Aid Guide

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

VOC: Volatile Organic Compounds

SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Skin Corr. 1A; H314	Manufacturer
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Repr. 2; H361d	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H332 Harmful if inhaled.

H361d Suspected of damaging the unborn child.

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

EUH071 Corrosive to the respiratory tract.



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Further Information

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.

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.