Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) 2020/878

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

1.1. **Product identifier**

Article No. (manufacturer/supplier)	3643Eco
Trade name/designation	Additive Hardener 2K
	UFI: CFG0-9021-Y001-WAM5

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

Relevant identified uses
Hardener-Compound

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

manufacturer

Saicos Colour GmbH	
Carl-Zeiss-Str.3	Telephone: +49 (0) 2583 3037-0
D-48336 Sassenberg	Telefax: +49 (0) 2583 3037-10

Department responsible for information:

E-mail (competent person)	info@saicos.de

1.4. **Emergency telephone number**
Giftnotruf Berlin: +49 30 30686 700 Beratung in Deutsch und Englisch

SECTION 2: Hazards identification

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

Classification according to Regulation (EC) No 1272/2008 [CLP]

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Acute Tox. 4 / H332	Acute toxicity (inhalative)	Harmful if inhaled.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
STOT SE 3 / H335	STOT-single exposure	May cause respiratory irritation.
Aquatic Chronic 3 / H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects.

2.2. **Label elements**

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms

Warning

Hazard statements

H332	Harmful if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing vapours.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection/face protection.
P302 + P352	IF ON SKIN: Wash with plenty of water and soap.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Keep locked up.
P501	Dispose of contents/container to industrial incineration plant.

Hazard components for labelling

Cyclohexanamine, N,N-dimethyl-, compds. with 3-(cyclohexylamino)-1-propanesulfonic acid-blocked 1,6-diisocyanatohexane homopolymer
Hexamethylene diisocyanate, oligomers

Supplemental hazard information
not applicable

2.3. **Other hazards**

No information available.

SECTION 3: Composition/information on ingredients

3.2. **Mixtures**

Description Aliphatic polyisocyanate

Classification according to Regulation (EC) No 1272/2008 [CLP]

EC No. CAS No. Index No.	REACH No. Designation classification: // Remark	weight-%
666723-27-9	Cyclohexanamine, N,N-dimethyl-, compds. with 3-(cyclohexylamino)-1-propanesulfonic acid-blocked 1,6-diisocyanatohexane homopolymer Acute Tox. 4 H332 / Skin Sens. 1B H317 / STOT SE 3 H335 / Aquatic Chronic 3 H412	50 - 100
931-274-8 28182-81-2	01-2119485796-17 Hexamethylene diisocyanate, oligomers Acute Tox. 4 H332 / Skin Sens. 1 H317 / STOT SE 3 H335	25 - 50

Additional information
Full text of classification: see section 16

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 advice. In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

In case of inhalation
Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration.

Following skin contact
Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

After eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

Following ingestion
If swallowed, rinse mouth with water (only if the person is conscious). Seek medical advice immediately. Keep victim calm. Do NOT induce vomiting.

4.2. **Most important symptoms and effects, both acute and delayed**
In all cases of doubt, or when symptoms persist, seek medical advice.

4.3. **Indication of any immediate medical attention and special treatment needed**
First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. **Extinguishing media**

Suitable extinguishing media
alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

Unsuitable extinguishing media
strong water jet

5.2. **Special hazards arising from the substance or mixture**
Dense black smoke occurs during fire. Inhaling hazardous decomposing products can cause serious health damage.

5.3. **Advice for firefighters**
Provide a conveniently located respiratory protective device.Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways.

SECTION 6: Accidental release measures

6.1. **Personal precautions, protective equipment and emergency procedures**
Keep away from sources of ignition. Ventilate affected area. Do not breathe vapours.

6.2. **Environmental precautions**
Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

6.3. **Methods and material for containment and cleaning up**
Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13). Use appropriate container to avoid environmental contamination. Fouled surfaces must be immediately cleaned with suitable solvents, Useable as such (flammable): water 45 vol.% ethanol or i-propanol 50 vol. % ammonia solution (density= 0.88) 5 vol.%
Alternative (non-flammable): sodium carbonate 5 vol.% water 95 vol.%.
Take up spilled residuals with the same agent and leave them for a few days in unclosed containers until there is no further reaction. Then, close the containers and dispose of them in accordance with the regulations for waste removal (refer to section 13).

6.4. **Reference to other sections**
Observe protective provisions (see section 7 and 8).

SECTION 7: Handling and storage

People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this mixture.
People who spray this preparation should have regular pulmonary function tests.

7.1. **Precautions for safe handling**

Advices on safe handling

Avoid formation of flammable and explosive vapour concentrations in the air and exceeding the exposure limit values. Only use the material in places where open light, fire and other flammable sources can be kept away. Electrical equipment must be protected meeting the accepted standard. Product may become electrostatically charged. Provide earthing of containers, equipment, pumps and ventilation facilities. Anti-static clothing including shoes are recommended. Floors must be electrically conductive. Be careful when opening used containers (excess pressure). Precautionary measures should be taken in order to reduce strain from humidity or water: CO2 is formed which may produce excess pressure in closed containers . Keep away from heat sources, sparks and open flames. Use only spark proof tools.Avoid contact with skin, eyes and clothes. Do not inhale dusts, particulates and spray mist when using this preparation. Avoid respiration of swarf. When using do not eat, drink or smoke. Personal protection equipment: refer to section 8. Do not empty containers with pressure - no pressure vessel! Always keep in containers that correspond to the material of the original container. Follow the legal protection and safety regulations.

Further information
Vapours are heavier than air. Vapours form explosive mixtures with air.

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

Requirements for storage rooms and vessels
Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSiVO). Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks. Soils have to conform to the "Guidelines for avoidance of ignition hazards due to electrostatic charges (TRGS 727)".

Hints on joint storage
Keep away from strongly acidic and alkaline materials as well as oxidizers. Keep away from amines, alcohols and water.

Further information on storage conditions
Take care of instructions on label. Store in a well-ventilated and dry room at temperatures between 15 °C and 30 °C. Protect from heat and direct sunlight. Keep container tightly closed. Remove all sources of ignition. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

7.3. **Specific end use(s)**
Observe technical data sheet. Observe instructions for use.

SECTION 8: Exposure controls/personal protection

People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this mixture.
People who spray this preparation should have regular pulmonary function tests.

8.1. **Control parameters**

Occupational exposure limit values:

not applicable

DNEL:

Hexamethylene diisocyanate, oligomers
EC No. 931-274-8 / CAS No. 28182-81-2
DNEL acute inhalative (local), Workers: 1 mg/m³
DNEL long-term inhalative (local), Workers: 0,5 mg/m³

PNEC:

Hexamethylene diisocyanate, oligomers
EC No. 931-274-8 / CAS No. 28182-81-2
PNEC aquatic, freshwater: 0,127 mg/L
PNEC aquatic, marine water: 0,0127 mg/L
PNEC sediment, freshwater: 266700 mg/kg
PNEC sediment, marine water: 266700 mg/kg
PNEC, soil: 53182 mg/kg
PNEC sewage treatment plant (STP): 38,28 mg/L

8.2. **Exposure controls**

Provide good ventilation. This can be achieved with local or room suction. When spraying, wear self-contained breathing apparatus. For other tasks a suitable respiratory system must be used, if local and room suction is not sufficient for keeping aerosol and solvent vapour concentration below the exposure limit values. (refer to Personal protection equipment.)

Personal protection equipment

Respiratory protection
If concentration of solvents is beyond the occupational exposure limit values, approved and suitable respiratory protection must be used. Use only respiratory protection equipment with CE-symbol including four digit test number.

Hand protection
For prolonged or repeated handling the following glove material must be used: Butyl caoutchouc (butyl rubber)
Thickness of the glove material > 0,4 mm ; Breakthrough time: > 480 min.
Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Penetration time of glove material depending on intensity and duration of exposure to skin. Recommended glove articles EN ISO 374
Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye/face protection
Wear closely fitting protective glasses in case of splashes.

Body protection
Wear antistatic clothing of natural fibers (cotton) or heat resistant synthetic fibers.

Protective measures
After contact clean skin thoroughly with water and soap or use appropriate cleanser.

Environmental exposure controls
Do not allow to enter into surface water or drains. See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

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

Physical state:	**Liquid**
Colour:	**Colour**
Odour:	**characteristic**
Odour threshold:	**not applicable**
Melting point/freezing point:	**not applicable**

Initial boiling point and boiling range:	**not applicable**
Flammability	Combustible liquid.
Lower and upper explosion limit	
Lower explosion limit:	**not applicable**
Upper explosion limit:	**not applicable**
Flash point:	**65 °C** Method: DIN 53213-1
Auto-ignition temperature:	**not applicable**
Decomposition temperature:	**not applicable**
pH at 20 °C:	**not applicable**
Kinematic viscosity (40°C):	**< 270 mm²/s**
Viscosity at 20 °C:	**49 s 4 mm** Method: DIN 53211
Solubility(ies):	
Water solubility at 20 °C:	**insoluble**
Partition coefficient: n-octanol/water:	**see section 12**
Vapour pressure at 20 °C:	**not applicable**
Density and/or relative density:	
Density at 20 °C:	**1,16 g/cm³**
Relative vapour density:	**not applicable**
particle characteristics:	**not applicable**

9.2. **Other information**

Solid content:	**100 weight-%**
solvent content:	
Organic solvents:	**0 weight-%**
Water:	**0 weight-%**

SECTION 10: Stability and reactivity

10.1. **Reactivity**
Reacts with water, forming carbon dioxide, producing bursting hazard in closed containers due to build-up of pressure.

10.2. **Chemical stability**
Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

10.3. **Possibility of hazardous reactions**
Keep away from strong acids, strong bases and strong oxidizing agents to avoid exothermic reactions.Reacts with water, forming carbon dioxide, producing bursting hazard in closed containers due to build-up of pressure.

10.4. **Conditions to avoid**
Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7. Hazardous decomposition byproducts may form with exposure to high temperatures.

10.5. **Incompatible materials**
not applicable

10.6. **Hazardous decomposition products**
Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

SECTION 11: Toxicological information

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

Acute toxicity

Harmful if inhaled.

Hexamethylene diisocyanate, oligomers

oral, LD50, Rat: > 2500 mg/kg
Method: OECD 423
dermal, LD50, Rat: > 2000 mg/kg
Method: OECD 402

Cyclohexanamine, N,N-dimethyl-, compds. with 3-(cyclohexylamino)-1-propanesulfonic acid-blocked 1,6-diisocyanatohexane homopolymer
oral, LD50, Rat: > 2000 mg/kg
dermal, LD50, Rat: > 2000 mg/kg
inhalative (dust and mist), LC50, Rat: 0,39 mg/L (4 h)

Skin corrosion/irritation; Serious eye damage/eye irritation

Hexamethylene diisocyanate, oligomers
Skin, Rabbit. (4 h)
Method: OECD 404
mild irritant.
eyes, Rabbit.
Method: OECD 405
mild irritant.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Hexamethylene diisocyanate, oligomers
Skin, Guinea pig: ; Evaluation sensitising.
Method: OECD 406

Cyclohexanamine, N,N-dimethyl-, compds. with 3-(cyclohexylamino)-1-propanesulfonic acid-blocked 1,6-diisocyanatohexane homopolymer
Skin, Mouse: ; Evaluation positive
May cause sensitization by skin contact.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

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

STOT-single exposure; STOT-repeated exposure

May cause respiratory irritation.

Aspiration hazard

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

Practical experience/human evidence

Inhaling of solvent components above the MWC-value can lead to health damage, e.g. irritation of the mucous membrane and respiratory organs, as well as damage to the liver, kidneys and the central nerve system. Indications for this are: headache, dizziness, fatigue, amyosthenia, drowsiness, in serious cases: unconsciousness. Solvents may cause some of the aforementioned effects through skin resorption. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and/or absorption through skin. Splashing may cause eye irritation and reversible damage. Because of the isocyanate components' properties of this and with consideration of similar preparations the following applies: This mixture may cause acute irrtation and/or sensitization of airways which lead to tightness in thorax, short-breath and asthmatic complaints. After sensitization even concentrations below the exposure limit values may cause asthma. Repeated inhaling can lead to permanent illness of the respiratory tract.

Overall assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

11.2. **Information on other hazards**

Endocrine disrupting properties
No information available.

SECTION 12: Ecological information

Classification according to Regulation (EC) No 1272/2008 [CLP]
Do not allow to enter into surface water or drains.

12.1. **Toxicity**

Hexamethylene diisocyanate, oligomers
Daphnia toxicity, EC50, Daphnia magna (Big water flea): 127 mg/L (48 h)

Algae toxicity, ErC50, Scenedesmus subspicatus: > 1000 mg/L (72 h)
Method: OECD 201

Cyclohexanamine, N,N-dimethyl-, compds. with 3-(cyclohexylamino)-1-propanesulfonic acid-blocked 1,6-diisocyanatohexane homopolymer
Fish toxicity, LC50, Danio rerio (zebrafish): 35,2 mg/L (96 h)
Daphnia toxicity, EC50, Daphnia magna (Big water flea): > 100 mg/L (48 h)
Algae toxicity, ErC50, Desmodesmus subspicatus: 72 mg/L (72 h)

Long-term Ecotoxicity

Harmful to aquatic life with long lasting effects.

12.2. **Persistence and degradability**

Hexamethylene diisocyanate, oligomers
: 1 Degradation rate (28 day(s)); Evaluation Not readily biodegradable (according to OECD criteria)
Method: OECD 301A

Cyclohexanamine, N,N-dimethyl-, compds. with 3-(cyclohexylamino)-1-propanesulfonic acid-blocked 1,6-diisocyanatohexane homopolymer
: > 0,1 Degradation rate (28 day(s)); Evaluation Not readily biodegradable (according to OECD criteria)

12.3. **Bioaccumulative potential**

Hexamethylene diisocyanate, oligomers
Partition coefficient: n-octanol/water: 141

Bioconcentration factor (BCF)

Toxicological data are not available.

12.4. **Mobility in soil**
Toxicological data are not available.

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

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

12.6. **Endocrine disrupting properties**
No information available.

12.7. **Other adverse effects**
No information available.

SECTION 13: Disposal considerations

13.1. **Waste treatment methods**

Appropriate disposal / Product
Recommendation
Do not allow to enter into surface water or drains. Handle contaminated packages in the same way as the substance itself.This material and its container must be disposed of in a safe way. Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

List of proposed waste codes/waste designations in accordance with EWC
080111* Waste paint and varnish containing organic solvents or other dangerous substances
*Hazardous waste according to Directive 2008/98/EC (waste framework directive).

Appropriate disposal / Package
Recommendation
Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

SECTION 14: Transport information

No dangerous good in sense of this transport regulation.

14.1. **UN number or ID number**
not applicable

14.2. **UN proper shipping name**

14.3. **Transport hazard class(es)**
not applicable

14.4. **Packing group**
not applicable

14.5. **Environmental hazards**

Land transport (ADR/RID)	not applicable
Marine pollutant	not applicable

14.6. **Special precautions for user**

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.
Advices on safe handling: see parts 6 - 8

Further information

Land transport (ADR/RID)

Tunnel restriction code	-

Sea transport (IMDG)

EmS-No.	not applicable

14.7. **Maritime transport in bulk according to IMO instruments**

No transport as bulk according IBC - Code.

SECTION 15: Regulatory information

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

EU legislation

Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive]
VOC-value (in g/L): 0

National regulations

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

15.2. **Chemical Safety Assessment**
For the following substances of this mixture a chemical safety assessment has been carried out:

EC No. CAS No.	Designation	REACH No.
931-274-8 28182-81-2	Hexamethylene diisocyanate, oligomers	01-2119485796-17

SECTION 16: Other information

Full text of classification in section 3:

Acute Tox. 4 / H332	Acute toxicity (inhalative)	Harmful if inhaled.
Skin Sens. 1B / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
STOT SE 3 / H335	STOT-single exposure	May cause respiratory irritation.
Aquatic Chronic 3 / H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.

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

Acute Tox. 4	Acute toxicity (inhalative)	Calculation method.
Skin Sens. 1	Respiratory or skin sensitisation	Calculation method.
STOT SE 3	STOT-single exposure	Calculation method.
Aquatic Chronic 3	Hazardous to the aquatic environment	Calculation method.

Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL	Occupational Exposure Limit Value
BLV	Biological Limit Value
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, Mutagenic and Reprotoxic
DIN	German Institute for Standardization / German industrial standard
DNEL	Derived No-Effect Level
EAKV	European Waste Catalogue Directive

EC	Effective Concentration
EC	European Community
EN	European Standard
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
ISO	International Organization for Standardization
LC	Lethal Concentration
LD	Lethal Dose
MAK	Maximum wokplace concentration
MARPOL	Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

Further information
Classification according to Regulation (EC) No 1272/2008 [CLP]

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in section 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.