Safety Data Sheet
according to US OSHA Hazard Communication Standard (29 CFR 1910.1200)

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

1.1 Product identifier

Trade name/designation

553 Härter C hardener/cross-linker
UFI: HGH1-20FJ-Y004-NQPF

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

Relevant identified uses

Hardener (Crosslinker)

1.3 Details of the supplier of the safety data sheet

Supplier

Renia Gesellschaft mbH
Ostmerheimer Straße 516
51109 Köln
Deutschland
Telephone: +492216307990
E-mail: info@renia.com
Website: www.renia.com

Department responsible for information

E-mail (competent person) labor@renia.com

1.4 Emergency telephone number

24 hr. emergency phone number: 1-800-535-5053

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Flam. Liq. 2; flammable liquids; H225 Highly flammable liquid and vapour.
* Carc. 2; Carcinogenicity; H351 Suspected of causing cancer.
Resp. Sens. 1; Sensitisation to the respiratory tract; H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
STOT SE 3 Narcotic effects; STOT-single exposure; H336 May cause drowsiness or dizziness.
Skin Sens. 1; Skin sensitisation; H317 May cause an allergic skin reaction.

2.2 Label elements

Hazard pictograms

GHS02 GHS07 GHS08

Signal word

Danger

* **Hazard statements**

H225	Highly flammable liquid and vapour.
H351	Suspected of causing cancer.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H336	May cause drowsiness or dizziness.
H317	May cause an allergic skin reaction.

* **Precautionary statements**

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
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.
P280	Wear protective gloves and eye/face protection.

P284	In case of inadequate ventilation wear respiratory protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER if you feel unwell.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use extinguishing powder or sand to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container to industrial incineration plant.

Hazard components for labelling

aromatic polyisocyanate
* ethyl acetate
m-tolylidene diisocyanate, oligomerisation product
* m-tolylidene diisocyanate; toluene-diisocyanate

2.3 Hazards not otherwise classified (HNOC)

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

SECTION 3: Composition/information on ingredients.

3.2 Mixtures

Description

Aromatic polyisocyanate in ethyl acetate.

Hazardous ingredients

	CAS No.	Substance name	weight-%
*	141-78-6	**ethyl acetate** Flam. Liq. 2 H225 / Eye Irrit. 2 H319 / STOT SE 3 H336	50,0 < 70,0
*	9017-01-0	**m-tolylidene diisocyanate, oligomerisation product** Skin Sens. 1B H317	20,0 < 25,0
*	26006-20-2	**aromatic polyisocyanate** Skin Sens. 1 H317 / Eye Irrit. 2 H319	8,00 < 10,0
*	26471-62-5	**m-tolylidene diisocyanate; toluene-diisocyanate** Skin Irrit. 2 H315 / Skin Sens. 1 H317 / Eye Irrit. 2 H319 / Acute Tox. 2 H330 / Resp. Sens. 1 H334 / STOT SE 3 H335 / Carc. 2 H351 / Aquatic Chronic 3 H412	0,150 < 0,200

Remark

Full text of H-phrases: 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.

Following 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

* Remove contaminated, saturated clothing immediately. 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.

Self-protection of the first aider

First aider: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delayed

Symptoms

* 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 (CO2), Powder, spray mist, (water)

Unsuitable extinguishing media

* Strong water jet

5.2 Special hazards arising from the substance or mixture

* Inhaling hazardous decomposing products can cause serious health damage.Flammable. Vapours can form explosive mixtures with air.

Hazardous combustion products

* In case of fire may be liberated: Hydrogen cyanide (hydrocyanic acid).

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

* 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

For containment

* 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).

For cleaning up

* Clean using cleansing agents. Do not use solvents.

6.4 Reference to other sections

* Safe handling: see section 7
  Personal protection equipment: refer to section 8
  Disposal: see section 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling

* Avoid contact with skin, eyes and clothes. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Personal protection equipment: see 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.

Advices on general occupational hygiene

* When using do not eat, drink or smoke.

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.

Hints on joint storage

* Keep away from strongly acidic and alkaline materials as well as oxidizers.

Storage class LGK3 - Flammable liquids

Further information on storage conditions

* Keep container tightly closed. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks. Store in a well-ventilated and dry room at temperatures between 10 °C and 30 °C.

7.3 Specific end use(s)

* Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

	CAS No.	Substance name	Source	Long-term /short-term (Spitzenbegrenzung)
*	141-78-6	ethyl acetate	ACGIH	1,440 / - (-) mg/m³
*	141-78-6	ethyl acetate	IDLH	- / - (-) mg/m³
*	141-78-6	ethyl acetate	NIOSH	1,400 / - (-) mg/m³
*	141-78-6	ethyl acetate	OSHA	1,400 / - (-) mg/m³

Additional information

Long-term: Long-term occupational exposure limit value
short-term: short-term occupational exposure limit value

Biological limit values

No data available

DNEL worker

	CAS No.	Substance name	DNEL type	DNEL value
*	141-78-6	ethyl acetate	DNEL long-term inhalative (systemic)	1.468 mg/L
*	141-78-6	ethyl acetate	DNEL acute inhalative (local)	1.468 mg/L
*	141-78-6	ethyl acetate	DNEL long-term dermal (systemic)	63 mg/kg
*	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	DNEL long-term inhalative (local)	0.345 mg/m³
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	DNEL long-term inhalative (systemic)	0.035 mg/m³
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	DNEL acute inhalative (systemic)	0.14 mg/m³
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	DNEL acute inhalative (local)	0.14 mg/m³
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	DNEL long-term inhalative (local)	0.035 mg/m³

DNEL Consumer

	CAS No.	Substance name	DNEL type	DNEL value
*	141-78-6	ethyl acetate	DNEL acute inhalative (systemic)	0.734 mg/L
*	141-78-6	ethyl acetate	DNEL long-term inhalative (local)	0.734 mg/L
*	141-78-6	ethyl acetate	DNEL long-term dermal (systemic)	37 mg/kg
*	141-78-6	ethyl acetate	DNEL long-term inhalative (systemic)	0.037 mg/L
*	141-78-6	ethyl acetate	DNEL long-term oral (repeated)	4.5 mg/kg
*	141-78-6	ethyl acetate	DNEL acute inhalative (local)	0.367 mg/L

PNEC

CAS No.	Substance name	PNEC type	PNEC Value

*	141-78-6	ethyl acetate	PNEC aquatic, freshwater	0.26 mg/L
*	141-78-6	ethyl acetate	PNEC aquatic, marine water	0.026 mg/L
*	141-78-6	ethyl acetate	PNEC sediment, freshwater	0.34 mg/kg
*	141-78-6	ethyl acetate	PNEC sediment, marine water	0.034 mg/kg
*	141-78-6	ethyl acetate	PNEC soil, freshwater	0.22 mg/kg
*	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	PNEC aquatic, freshwater	0.1 mg/L
*	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	PNEC sediment, freshwater	3,302 mg/kg dw
*	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	PNEC aquatic, marine water	0.01 mg/L
	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	PNEC sediment, marine water	330 mg/kg dw
*	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	PNEC sewage treatment plant (STP)	0.1 mg/L
	9017-01-0	m-tolylidene diisocyanate, oligomerisation product	PNEC soil, freshwater	658 mg/kg dw
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	PNEC aquatic, freshwater	0.013 mg/L
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	PNEC aquatic, marine water	0.001 mg/L
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	PNEC sewage treatment plant (STP)	1 mg/L
*	26471-62-5	m-tolylidene diisocyanate; toluene-diisocyanate	PNEC soil, freshwater	1 mg/kg dw

8.2 Exposure controls

Provide good ventilation.This can be achieved with local or room suction.

Personal protection equipment

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Hand protection

Suitable material: NBR (Nitrile rubber)
Thickness of the glove material >= 0.4 mm
Breakthrough time >= 480 min

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. 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

Skin protection

* Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye/face protection

* Eye glasses with side protection

Body protection

* When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

Environmental exposure controls

* Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	colourless
Odour	characteristic
pH at 20 °C	not determined
Melting point/freezing point	not determined
Initial boiling point and boiling range	<= 77 °C
Flash point	-4 °C

flammability	not applicable
Lower explosion limit at 20°C	2.1 Vol-%
Upper explosion limit at 20°C	11.5 Vol-%
Vapour pressure at 20°C	97 mbar
Relative vapour density	not applicable
Density at 20 °C	0.85 kg/L
Water solubility at 20°C	not determined
Partition coefficient: n-octanol/water	see section 12
Ignition temperature in °C	460 °C
Decomposition temperature	not determined
Dynamic viscosity at 20 °C	0.44

9.2 Other information

not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

* No specific test data related to reactivity available for this product or its ingredients.

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.

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

* No further relevant information available.

10.6 Hazardous decomposition products

* Hazardous decomposition byproducts may form with exposure to high temperatures e.g.: Carbon dioxide (CO2), Carbon monoxide, smoke.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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

* **aromatic polyisocyanate**
LD50: oral (Rat): > 5,000 mg/kg

LD50: dermal (Rat): > 1 mg/kg

* LC50: inhalative (Rat): > 3,003 mg/L (4 h)

* **ethyl acetate**
LD50: oral (Rat): > 5,620 mg/kg

* LD50: dermal (Rabbit): > 18,000 mg/kg

* LC50: inhalative (Rat): = 56 mg/L (4 h)

* **m-tolylidene diisocyanate, oligomerisation product**
LD50: oral (Rat): > 2,000 mg/kg; (OECD 423)

* LC50: inhalative (Rat): > 1,839 mg/L (4 h); (OECD 403)

* **m-tolylidene diisocyanate; toluene-diisocyanate**
LD50: oral (Rat): > 2,000 mg/kg; (OECD 401)

* LC50: inhalative (Rat): = 0.48 mg/L (4 h); (OECD 403)

* LD50: dermal (Rabbit): > 9,400 mg/kg bw; (OECD 402)

Skin corrosion/irritation

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 or skin sensitisation

May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

* **Overall assessment on CMR properties**

* Suspected of causing cancer.

STOT-single exposure

May cause drowsiness or dizziness.

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.

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, Dizziness, 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.

11.2 Information on other hazards

* **Endocrine disrupting properties**

* This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 12: Ecological information

12.1 Toxicity

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

Acute (short-term) fish toxicity

* **ethyl acetate**
LC50: (Oncorhynchus mykiss (Rainbow trout)): = 230 mg/L (96 h)

m-tolylidene diisocyanate, oligomerisation product

* LC50: (Danio rerio (zebrafish)): > 100 mg/L (96 h)
Method: OECD 203

m-tolylidene diisocyanate; toluene-diisocyanate

* LC50: (Oncorhynchus mykiss (Rainbow trout)): = 133 mg/L (96 h)
Method: OECD 203

Acute (short-term) toxicity to algae and cyanobacteria

* **ethyl acetate**
LC50: (Desmodesmus subspicatus): = 5,600 mg/L (48 h)

m-tolylidene diisocyanate, oligomerisation product

* ErC50: (Desmodesmus subspicatus): > 100 mg/L (72 h)
Method: OECD 201

m-tolylidene diisocyanate; toluene-diisocyanate

* ErC50: (Skeletonema costatum): = 3,230 mg/L (96 h)
Method: OECD 201

Acute (short-term) toxicity to crustacea

* **ethyl acetate**
EC50 (Daphnia magna (Big water flea)): = 165 mg/L (48 h)

m-tolylidene diisocyanate, oligomerisation product

* EC50 (Daphnia magna (Big water flea)): > 100 mg/L (48 h)
Method: OECD 202

m-tolylidene diisocyanate; toluene-diisocyanate

* EC50 (Daphnia magna (Big water flea)): = 12.5 mg/L (48 h)
Method: OECD 202

12.2 Persistence and degradability

m-tolylidene diisocyanate, oligomerisation product

* Biodegradation; (Activated sludge); Biochemical oxygen demand = 4 % (28 d)
Method: OECD 301F/ ISO 9408/ EEC 92/69/V, C.4-D
Not readily biodegradable (according to OECD criteria)

12.3 Bioaccumulative potential

* Partition coefficient: n-octanol/water = 0.68

12.4 Mobility in soil

No information 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

* **Product/Packaging disposal**

Do not empty into drains; dispose of this material and its container in a safe way.

Waste codes/waste designations according to EWC/AVV

080409* - Waste adhesives and sealants containing organic solvents or other dangerous substances

Other disposal recommendations

Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

SECTION 14: Transport information

14.1 UN number or ID number

UN 1866

14.2 UN proper shipping name

* **Land transport (US DoT 49 CFR)**

Resin solution

Sea transport (IMDG)

Resin solution

Air transport (ICAO-TI / IATA-DGR)

Resin solution

14.3 Transport hazard class(es)

*	Land transport (US DoT 49 CFR)	3
	Sea transport (IMDG)	3
	Air transport (ICAO-TI / IATA-DGR)	3

14.4 Packing group

*	Land transport (US DoT 49 CFR)	II
	Sea transport (IMDG)	II
	Air transport (ICAO-TI / IATA-DGR)	II

14.5 Environmental hazards

*	Land transport (US DoT 49 CFR)	not applicable
	Sea transport (IMDG)	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

14.7 Maritime transport in bulk according to IMO instruments

No transport as bulk according to IBC Code.

14.8 Additional information

* **Land transport (US DoT 49 CFR)**

* Tunnel restriction code: D/E
Special Provisions: SV 640D
Limited quantity (LQ): 5 Liter
Hazard identification number (Kemler No.): 33

Sea transport (IMDG)

* EmS-No.: F-E, S-E
Limited quantity (LQ): 5 Liter

Air transport (ICAO-TI / IATA-DGR)

not applicable

SECTION 15: Regulatory information

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

National regulations

* Observe in addition any national regulations!

* SARA Title III Section 311/312 Hazard Categories: Refer to section 2 of the safety data sheet.

SECTION 16: Other information

List of relevant hazard statements and/or precautionary statements from sections 2 to 15

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
H412	Harmful to aquatic life with long lasting effects.

Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL: Occupational Exposure Limit Value
BLV: Biological limit values
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
:
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
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
UN: United Nations
VOC: Volatile Organic Compounds
vPvB: very persistent and very bioaccumulative

Indication of changes

* Data changed compared with the previous version.