

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

1.1. Product identifier

Product form	: Mixture
Product name	: Altro Flexiflow Standard / Altro Flexiflow Slip-resistant Top-coat Hardener
Product code	: AFFTC_H ; AFFTCR_H
Product group	: End product

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

1.2.1. Relevant identified uses

Main use category	: Industrial use, Professional use
Use of the substance/mixture	: Polyurethane Hardener - Industrial floor coating

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Altro Resin Systems
Unit 3 Station Road Industrial Estate
Station Road
GB- DT2 0AE Maiden Newton Dorchester
T 01300 320620
sds@altro.com - www.altro.com

Other

Altro GmbH
Ebertallee 209
06846 Dessau-Roßlau
DE
T +49 (0) 340 6500-0

1.4. Emergency telephone number

Emergency number	: 01462 480480 Monday - Friday 09:00-17:00
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Acute toxicity (inhalation:dust,mist) Category 4	H332
Skin sensitisation, Category 1	H317
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Full text of H- and EUH-statements: see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP)



GHS07

Signal word (CLP)

: Warning

Contains

: HDI oligomers, isocyanurate; hydrophilic aliphatic polyisocyanate

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Hazard statements (CLP)	: H317 - May cause an allergic skin reaction. H332 - Harmful if inhaled. H335 - May cause respiratory irritation.
Precautionary statements (CLP)	: P261 - Avoid breathing vapours, spray. P271 - Use only outdoors or in a well-ventilated area. P280 - Wear protective clothing, eye protection, face protection, protective gloves. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P312 - Call a POISON CENTER, doctor if you feel unwell. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
Extra phrases	: As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. Other hazards

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
HDI oligomers, isocyanurate	CAS-No.: 28182-81-2 EC-No.: 931-274-8 REACH-no: 01-2119488934-20	≥ 75	Acute Tox. 4 (Inhalation), H332 (ATE=1.5 mg/l/4h) Skin Sens. 1, H317 STOT SE 3, H335
hydrophilic aliphatic polyisocyanate	CAS-No.: 666723-27-9	$\geq 15 - < 30$	Acute Tox. 3 (Inhalation), H331 (ATE=0.15 mg/l/4h) Acute Tox. 2 (Inhalation:dust,mist), H330 (ATE=0.15 mg/l/4h) Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 3, H412

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Take off all contaminated clothing and wash its before reuse.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact	: Take off contaminated clothing. Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: Immediately rinse with water for a prolonged period while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Do not induce vomiting. Get medical advice/attention if you feel unwell.

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

Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: irritation (itching, redness, blistering).
Symptoms/effects after eye contact	: Causes eye irritation. redness, itching, tears.
Symptoms/effects after ingestion	: May cause irritation to the digestive tract.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Carbon dioxide (CO ₂). Dry powder. Foam. In case of a larger fire, water spray should be used.
Unsuitable extinguishing media	: Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: In case of fire and/or explosion do not breathe fumes. On burning: release of toxic gases/vapours. Carbon oxides (CO, CO ₂). Nitrogenous substances.
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5.3. Advice for firefighters

Firefighting instructions	: Control run-off water by containing and keeping it out of sewers and watercourses.
Protection during firefighting	: Use self-contained breathing apparatus and chemically protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Take up liquid spill into absorbent material. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. This material and its container must be disposed of in a safe way, and as per local legislation.
Other information	: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide local exhaust or general room ventilation. Avoid contact with skin and eyes. Contaminated work clothing should not be allowed out of the workplace. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use. Keep only in original container. Keep cool. Store in a dry place. Store in a closed container. Store in a well-ventilated place. Keep container tightly closed.

7.3. Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

HDI oligomers, isocyanurate (28182-81-2)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	1 mg/m ³
Long-term - local effects, inhalation	0.5 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	0.127 mg/l
PNEC aqua (marine water)	0.0127 mg/l
PNEC aqua (intermittent, freshwater)	1.27 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	266701 mg/kg dwt
PNEC sediment (marine water)	26670 mg/kg dwt
PNEC (Soil)	
PNEC soil	53183 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	88 mg/l

8.1.5. Control banding

No additional information available

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8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

8.2.2. Personal protection equipment

Personal protective equipment:

Gloves. Safety glasses. Protective clothing.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Wear eye protection

8.2.2.2. Skin protection

Skin and body protection:

Avoid contact with skin

Hand protection:

Standard EN 374 - Protective gloves against chemicals.

Other skin protection

Materials for protective clothing:

Keep work clothing separately

8.2.2.3. Respiratory protection

Respiratory protection:

Wear suitable respiratory equipment in case of insufficient ventilation

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Yellowish.
Appearance	: Liquid.
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Not available
Explosive limits	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available

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Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions of use.

10.3. Possibility of hazardous reactions

None under normal use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Not known.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Harmful if inhaled.

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ATE CLP (dust,mist)	1.5 mg/l/4h
HDI oligomers, isocyanurate (28182-81-2)	
LD50 oral rat	> 2500 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

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HDI oligomers, isocyanurate (28182-81-2)	
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit, Guideline: other:

hydrophilic aliphatic polyisocyanate (666723-27-9)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 Inhalation - Rat (Dust/Mist)	0.15 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation.

HDI oligomers, isocyanurate (28182-81-2)	
STOT-single exposure	May cause respiratory irritation.

hydrophilic aliphatic polyisocyanate (666723-27-9)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified
Not rapidly degradable	

HDI oligomers, isocyanurate (28182-81-2)	
EC50 72h - Algae [1]	> 1000 mg/l Test organisms (species): other:

hydrophilic aliphatic polyisocyanate (666723-27-9)	
LC50 - Fish [1]	35.2 mg/l Zebra fish - MSDS - V7.1 04/08/2021
EC50 - Crustacea [1]	> 100 mg/l Water fleas - MSDS - V7.1 04/08/2021
EC50 72h - Algae [1]	72 mg/l

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

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12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Must follow special treatment according to local regulation.
HP Code	: HP5 - "Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:" waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration. HP6 - "Acute Toxicity:" waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure. HP13 - "Sensitising:" waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs.

SECTION 14: Transport information

In accordance with ADR / IMDG / ADN / RID

ADR	IMDG	ADN	RID
14.1. UN number or ID number			
Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name			
Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards			
Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available			

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Inland waterway transport

Not applicable

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Rail transport

Not applicable

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of H- and EUH-statements:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
H317	May cause an allergic skin reaction.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.

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Full text of H- and EUH-statements:

H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.
Skin Sens. 1	Skin sensitisation, Category 1
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

The classification complies with : ATP 12

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.