

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

#### 1.1. Product identifier

Product form : Mixture  
Product name : Altro Flexiflow Comfort Hardener  
Product code : FFC\_\_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](mailto:sds@altro.com) - [www.altro.com](http://www.altro.com)

#### 1.4. Emergency telephone number

Emergency number : 01462 480480  
Monday - Friday 09:00-17:00

### 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 corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Carcinogenicity, Category 2	H351
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Specific target organ toxicity – Repeated exposure, Category 2	H373

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)



Signal word (CLP)

: Danger

# Altro Flexiflow Comfort Hardener

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Contains	: Diphenylmethane-4,4-Diisocyanate (MDI) Isomers; Reaction mass of 4,4-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate
Hazard statements (CLP)	: H315 - Causes skin irritation. H317 - May cause an allergic skin reaction. H319 - Causes serious eye irritation. H332 - Harmful if inhaled. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 - May cause respiratory irritation. H351 - Suspected of causing cancer. H373 - May cause damage to organs through prolonged or repeated exposure.
Precautionary statements (CLP)	: P201 - Obtain special instructions before use. P261 - Avoid breathing spray, vapours. P280 - Wear eye protection, protective clothing, protective gloves. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P321 - Specific treatment (see supplemental first aid instruction on this label). P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER, doctor.
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]
Reaction mass of 4,4-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate substance with national workplace exposure limit(s) (GB)	CAS-No.: 26447-40-5 EC-No.: 905-806-4 REACH-no: 01-2119457015-45	60 – 80	Acute Tox. 4 (Inhalation), H332 (ATE=1.5 mg/l/4h) Acute Tox. 4 (Inhalation:dust,mist), H332 (ATE=1.5 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373
Diphenylmethane-4,4-Diisocyanate (MDI) Isomers	CAS-No.: 9016-87-9 EC-No.: 618-498-9	20 – 40	Acute Tox. 4 (Inhalation:dust,mist), H332 (ATE=1.5 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373

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

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### 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.

#### 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 <sub>2</sub> ). 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 <sub>2</sub> ). 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.

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### 6.4. Reference to other sections

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

## 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 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.  
Storage temperature : > 20 – < 35 °C  
Storage area : Avoid contact with water or humidity. If moisture enters isocyanate containers, CO<sub>2</sub> forms and pressure builds up.

### 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

No additional information available

#### 8.1.5. Control banding

No additional information available

### 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

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### 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	: yellow to brown.
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: > 200 °C
Flammability	: Not flammable
Explosive limits	: Not available
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: > 200 °C
Auto-ignition temperature	: Not available
Decomposition temperature	: > 230 °C
pH	: Not available
Viscosity, kinematic	: 28.926 mm <sup>2</sup> /s
Viscosity, dynamic	: 35 mPa·s @ 25°C
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: > 0.01 Pa @ 25°C
Vapour pressure at 50°C	: Not available
Density	: 1.21 g/cm <sup>3</sup> @ 20°C
Relative density	: 1.22 @ 20°C
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

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### 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. Decomposition may occur on exposure to conditions or materials listed below.

#### 10.4. Conditions to avoid

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

#### 10.5. Incompatible materials

Acids. Amines. Bases. Water.

#### 10.6. Hazardous decomposition products

In combustion emits toxic fumes.

### 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.

#### Altro Flexiflow Comfort Hardener

ATE CLP (dust,mist)	1.5 mg/l/4h
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#### Diphenylmethane-4,4-Diisocyanate (MDI) Isomers (9016-87-9)

LD50 oral rat	10000
LD50 dermal rabbit	9400 nl/kg
LC50 Inhalation - Rat [ppm]	4500 ppm
LC50 Inhalation - Rat (Dust/Mist)	1.5 mg/l/4h
LC50 Inhalation - Rat (Vapours)	11 mg/l/4h

#### Reaction mass of 4,4-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate (26447-40-5)

LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: other:
LC50 Inhalation - Rat	> 2.24 mg/l

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitisation : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Suspected of causing cancer.  
Reproductive toxicity : Not classified  
STOT-single exposure : May cause respiratory irritation.

#### Diphenylmethane-4,4-Diisocyanate (MDI) Isomers (9016-87-9)

STOT-single exposure	May cause respiratory irritation.
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### Reaction mass of 4,4-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate (26447-40-5)

STOT-single exposure	May cause respiratory irritation.
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STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

### Diphenylmethane-4,4-Diisocyanate (MDI) Isomers (9016-87-9)

LOAEC (inhalation, rat, vapour, 90 days)	0.23 mg/m <sup>3</sup> air (2 years, 17 h/day, 5 days / week)
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STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
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### Reaction mass of 4,4-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate (26447-40-5)

STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
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Aspiration hazard : Not classified

### Altro Flexiflow Comfort Hardener

Viscosity, kinematic	28.926 mm <sup>2</sup> /s
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### 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

### Diphenylmethane-4,4-Diisocyanate (MDI) Isomers (9016-87-9)

LC50 - Fish [1]	> 100 mg/l LL50 - Test species: Freshwater fish (Danio rerio)
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EC50 - Crustacea [1]	> 9 mg/l EL50 - Test species: Daphnia magna
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EC50 72h - Algae [1]	≥ 100 mg/l EL50 - Test species: Desmodesmus subspicatus
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NOEC chronic crustacea	≥ 10 mg/l 21 Days - Test species: Daphnia magna
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### Reaction mass of 4,4-methylenediphenyl diisocyanate and o-(p-isocyanatobenzyl)phenyl isocyanate (26447-40-5)

NOEC (chronic)	≥ 10 mg/l Test organisms (species): Duration: '21 d'
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### 12.2. Persistence and degradability

### Diphenylmethane-4,4-Diisocyanate (MDI) Isomers (9016-87-9)

Persistence and degradability	Not readily biodegradable.
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### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Endocrine disrupting properties

No additional information available

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

### 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. HP7 - "Carcinogenic:" waste which induces cancer or increases its incidence HP4 - "Irritant – skin irritation and eye damage:" waste which on application can cause skin irritation or damage to the eye. 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
<b>14.1. UN number or ID number</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.2. UN proper shipping name</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.3. Transport hazard class(es)</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.4. Packing group</b>			
Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>			
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

#### Rail transport

Not applicable

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

Not applicable



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### 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. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
Resp. Sens. 1	Respiratory sensitisation, Category 1

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Full text of H- and EUH-statements:	
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
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.