



SAFETY DATA SHEET

DICCODUR HARDENER

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

1.1 Product identifier

Product name : DICCODUR HARDENER
Product description : Hardener.

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

Recommended use: Painting work

1.3 Details of the supplier of the safety data sheet

Manufacturer or Distributor

Tikkurila Oyj
P.O. Box 53
FI-01301 VANTAA
FINLAND
Telephone +358 20 191 2000

e-mail address of person responsible for this SDS : Tikkurila Oyj,
Product Safety,
e-mail: productsafety@tikkurila.com

1.4 Emergency telephone number

Telephone number : 112
(24h)

Supplier or Manufacturer

Telephone number : Tikkurila Oyj
+358 20 191 2000 (GMT +2) Mon-Fri 8-16

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Flam. Liq. 3, H226
Acute Tox. 4, H332
Resp. Sens. 1, H334
Skin Sens. 1, H317
STOT SE 3, H335
STOT SE 3, H336

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements	: H226 - Flammable liquid and vapor. H332 - Harmful if inhaled. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H317 - May cause an allergic skin reaction. H335 - May cause respiratory irritation. H336 - May cause drowsiness or dizziness.
Precautionary statements	
General	: Not applicable.
Prevention	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P260 - Do not breathe mist/vapors/spray. P280 - Wear protective gloves/clothing and eye/face protection. P284 - In case of inadequate ventilation wear respiratory protection.
Response	: P302 + P352 - IF ON SKIN: Wash with plenty of soap and water. P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician.
Storage	: Not applicable.
Disposal	: Not applicable.
Hazardous ingredients	: n-butyl acetate hexamethylene diisocyanate, oligomers 4-isocyanatosulphonyltoluene toluene diisocyanate
Supplemental label elements	: Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification Regulation (EC) No. 1272/2008 [CLP]	Notes
n-butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4 Index: 607-025-00-1	≥50 - ≤75	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	-
hexamethylene diisocyanate, oligomers	REACH #: 01-2119485796-17 EC: 500-060-2 CAS: 28182-81-2	≥10 - ≤25	Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335	-
4-isocyanatosulphonyltoluene	REACH #: 01-2119980050-47 EC: 223-810-8 CAS: 4083-64-1 Index: 615-012-00-7	≤3	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 STOT SE 3, H335 EUH014	-
toluene diisocyanate	REACH #: 01-2119454791-34 EC: 247-722-4 CAS: 26471-62-5 Index: 615-006-00-4	≤0.3	Acute Tox. 1, H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 Aquatic Chronic 3, H412 See Section 16 for the full text of the H statements declared above.	C-2

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Notes, if applicable, refer to Notes given in Annex VI of 1272/2008/EC.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General** : In all cases of doubt, or when symptoms persist, seek medical attention. Show this safety data sheet or label to the doctor if possible.
- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of lukewarm water, keeping eyelids open. Continue to rinse for at least 15 minutes. Get medical attention if symptoms occur.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners. Get medical attention if symptoms occur.
- Ingestion** : If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Remove to fresh air and keep at rest in a position comfortable for breathing. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

 Harmful if inhaled.

May cause respiratory irritation.

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause drowsiness or dizziness.

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire. Recommended: Alcohol resistant foam, CO₂, powders or water spray/mist.
- Unsuitable extinguishing media** : Do not use a direct water jet that could spread the fire.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Flammable liquid and vapor. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Hazardous combustion products** : In a fire or when exposed to high temperatures, hazardous decomposition products may be produced, such as carbon monoxide, smoke, oxides of nitrogen, hydrogen cyanide and isocyanate compounds.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Do not release runoff from fire to drains or watercourses.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures** : Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Avoid breathing vapor or mist. Avoid direct skin contact with product. See Section 8 for information on appropriate personal protective equipment.
- 6.2 Environmental precautions** : Do not allow to enter drains, water courses or soil.
- 6.3 Methods and materials for containment and cleaning up** : Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13).
- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling** : Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. Isolate from sources of heat, sparks and open flame. In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. No sparking tools should be used.
- Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used. Skin contact with the product and exposure to spray mist and vapor should be avoided. Avoid contact with skin and eyes. Avoid inhalation of dust from sanding. Wear appropriate respirator when ventilation is inadequate. See Section 8 for information on appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled and stored. Wash hands before breaks and immediately after handling the product.
- Precautions should be taken to minimize exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurization. Care should be taken when re-opening partly-used containers.
- 7.2 Conditions for safe storage, including any incompatibilities** : Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store and use away from heat, sparks, open flame or any other ignition source. No smoking. Keep container tightly closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Recommended storage temperature is +5°C ...+25°C. Store in accordance with local regulations.
- 7.3 Specific end use(s)** : None.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available.

8.2 Exposure controls

Appropriate engineering controls

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used. Provide adequate ventilation. Use explosion-proof ventilation equipment. Air-fed protective respiratory equipment must be worn by the spray operator, even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapors below the OEL, suitable respiratory protection must be worn. (See Personal Protection.) Comply with the health and safety at work laws.

Individual protection measures

Eye/face protection : Use safety eyewear designed to protect against splash of liquids (EN166).

Hand protection : Always wear approved protective gloves against chemicals. Gloves should be replaced regularly and if there is any sign of damage to the glove material. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.
Recommended glove material (EN374):
< 1 hour (breakthrough time): nitrile rubber, fluor rubber
> 8 hours (breakthrough time): laminated foil
Not recommended: PVC or natural rubber (latex) gloves

Skin protection : Wear suitable protective clothing. This product is classified as flammable. If necessary, personnel should wear antistatic clothing made of natural fibers or of high-temperature-resistant synthetic fibers.

Respiratory protection : If ventilation is inadequate, use respirator that will protect against organic vapor and dust/mist. During spray-application use air-fed respirator (EN12941:1998). By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask (EN140:1998). Under cool, dry conditions, it is possible for the isocyanate to remain unreacted in the paint film over 30 hours after application. If dry flatting is unavoidable, air-fed respiratory protective equipment (EN12941:1998) should be used during sanding. Be sure to use an approved/certified respirator or equivalent. Check that mask fits tightly and change filter regularly.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance


Physical state	: Liquid.
Color	: Clear.
Odor	: Strong.
Odor threshold	: Not relevant for the hazard assessment of the product.
pH	: Not relevant for the hazard assessment of the product.
Melting point/freezing point	: <-90°C (n-butyl acetate)
Initial boiling point and boiling range	: 126°C (n-butyl acetate)
Flash point	: 23 °C (n-butyl acetate)

Evaporation rate	: 1 (butyl acetate = 1) (n-butyl acetate)
Flammability (solid, gas)	: Not applicable. Product is a liquid.
Upper/lower flammability or explosive limits	: Lower: 1.4% (n-butyl acetate) Upper: 7.6% (n-butyl acetate)
Vapor pressure	: 1.5 kPa [room temperature] (n-butyl acetate)
Vapor density	: 4 (n-butyl acetate)
Density	: 1 g/cm ³
Solubility(ies)	: insoluble in water.
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: 415°C (n-butyl acetate)
Decomposition temperature	: Not relevant for the hazard assessment of the product.
Viscosity	: Not relevant for the hazard assessment of the product.
Explosive properties	: No explosive ingredients present.
Oxidizing properties	: No oxidizing ingredients present.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

- 10.1 Reactivity** : See Section 10.5.
- 10.2 Chemical stability** : Stable under recommended storage and handling conditions (see Section 7).
- 10.3 Possibility of hazardous reactions** : May present an explosion hazard when material is suspended in air in confined areas or equipment and subjected to spark, heat or flame.
Reacts slowly with water, resulting in the production of carbon dioxide. In closed containers, pressure buildup could result in bursting of the container.
- 10.4 Conditions to avoid** : Avoid extreme heat and freezing. Avoid all possible sources of ignition (spark or flame).
- 10.5 Incompatible materials** : Keep away from the following materials to prevent strong exothermic reactions:
oxidizing agents
strong acids
strong alkalis
amines
alcohols
- 10.6 Hazardous decomposition products** :  When exposed to high temperatures, hazardous decomposition products may be produced, such as carbon monoxide and dioxide, smoke, oxides of nitrogen etc.
Fire will produce dense black smoke.
Welding, grinding and other hot work on the already-coated substrate may cause free isocyanates to be formed and released.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

There is no testdata available on the product itself.

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged skin contact may lead to allergic contact dermatitis. If splashed in the eyes, the liquid may cause irritation and reversible

damage. Ingestion may cause nausea, diarrhea and vomiting.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
hexamethylene diisocyanate, oligomers	LC50 Inhalation Dusts and mists	Rat	18500 mg/m ³	1 hours

Harmful if inhaled.

Irritation/Corrosion

Not classified.

Sensitization

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Mutagenicity

Not classified.

Carcinogenicity

Not classified.

Reproductive toxicity

Not classified.

Teratogenicity

Not classified.

Specific target organ toxicity (single exposure)

May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure)

Not classified.

Aspiration hazard

Not classified.

SECTION 12: Ecological information

Ecological testing has not been conducted on this product.

Do not allow to enter drains, water courses or soil.

The product is not classified as environmentally hazardous according to Regulation (EC) 1272/2008.

12.1 Toxicity : No specific data.

Not available.

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
hexamethylene diisocyanate, oligomers	-	50%; 10.3 day(s)	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	Bioconcentration factor [BCF]	Potential
toluene diisocyanate	3.43	-	low
hexamethylene diisocyanate, oligomers	5.54	367.7	low
n-butyl acetate	2.3	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects : Not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : Residues in empty containers should be neutralized with a decontaminant (see section 6). Liquid residue and cleaning liquids are hazardous waste and must not be emptied into drains or sewage system, but handled in accordance with national regulations. Product residues should be left at special companies which have permission for gathering this kind of wastes.

European waste catalogue (EWC)

Waste code	Waste designation
08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned. For further information, contact your local waste authority.

Packaging

Methods of disposal : Empty packaging should be recycled or disposed of in accordance with national regulations.

Special precautions : None.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1263	UN1263	UN1263
14.2 UN proper shipping name	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL
14.3 Transport hazard class(es)	3	3	3
14.4 Packing group	III	III	III
14.5 Environmental hazards	No.	No.	No.

Additional information

ADR/RID : **Tunnel code** (D/E)

IMDG : **Emergency schedules** F-E,S-E

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Other EU regulations

Europe inventory : Not determined.

Industrial emissions : Listed

(integrated pollution prevention and control) -
Air

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
toluene diisocyanate	Carc. 2, H351	-	-	-

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226	On basis of test data
Acute Tox. 4, H332	Calculation method
Resp. Sens. 1, H334	Calculation method
Skin Sens. 1, H317	Calculation method
STOT SE 3, H335	Calculation method
STOT SE 3, H336	Calculation method

Full text of abbreviated H statements

: H226 Flammable liquid and vapor.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H330 Fatal if inhaled.
 H332 Harmful 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.
 H412 Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]	: Acute Tox. 1, H330 Acute Tox. 4, H332 Aquatic Chronic 3, H412 Carc. 2, H351 EUH014 EUH066 Eye Irrit. 2, H319 Flam. Liq. 3, H226 Resp. Sens. 1, H334 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H335 STOT SE 3, H336	ACUTE TOXICITY (inhalation) - Category 1 ACUTE TOXICITY (inhalation) - Category 4 AQUATIC HAZARD (LONG-TERM) - Category 3 CARCINOGENICITY - Category 2 Reacts violently with water. Repeated exposure may cause skin dryness or cracking. SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 3 RESPIRATORY SENSITIZATION - Category 1 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
---	--	--

Date of issue/ Date of revision : 9/11/2019

Date of previous issue : 8/15/2018

Version : 3

Notice to reader

This Safety Data Sheet is prepared in accordance with Annex II (EU) No 830/2015 to Regulation (EC) No 1907/2006 (REACH). The information contained in this Safety Data Sheet is based on the present state of knowledge and current EU and national legislation. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.