



# SAFETY DATA SHEET

TEMAFLOOR PU HARDENER

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

### 1.1 Product identifier

Product name : TEMAFLOR PU HARDENER  
Product code : 0084011  
Product description : Hardener.

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

Recommended use: Painting work  
Only for industrial and professional use. The product is not intended for consumer use.

### 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 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]

Acute Tox. 4, H332  
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

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

### 2.2 Label elements

Hazard pictograms :



Signal word : Danger

<b>Hazard statements</b>	:	H332 - Harmful if inhaled. H319 - Causes serious eye irritation. H315 - Causes skin irritation. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H317 - May cause an allergic skin reaction. H351 - Suspected of causing cancer. H335 - May cause respiratory irritation. H373 - May cause damage to organs through prolonged or repeated exposure.
<b>Precautionary statements</b>		
<b>General</b>	:	Not applicable.
<b>Prevention</b>	:	P260 - Do not breathe vapor. P280 - Wear protective gloves/clothing and eye/face protection. P284 - In case of inadequate ventilation wear respiratory protection.
<b>Response</b>	:	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. P305 + P351 - IF IN EYES: Rinse cautiously with water for several minutes. P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
<b>Storage</b>	:	Not applicable.
<b>Disposal</b>	:	Not applicable.
<b>Hazardous ingredients</b>	:	1,3-bis(isocyanatomethyl)benzene, isomeres and homologues 4,4'-methylenediphenyl diisocyanate 2,4'-methylenediphenyl diisocyanate 2,2'-methylenediphenyl diisocyanate
<b>Supplemental label elements</b>	:	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
1,3-bis(isocyanatomethyl)benzene, isomeres and homologues	EC: 618-498-9 CAS: 9016-87-9	≥75 - ≤90	Acute Tox. 4, H332 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	-
4,4'-methylenediphenyl diisocyanate	REACH #: 01-2119457014-47 EC: 202-966-0 CAS: 101-68-8 Index: 615-005-00-9	≥10 - ≤16	Acute Tox. 4, H332 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	C-2
2,4'-methylenediphenyl diisocyanate	REACH #: 01-2119480143-45 EC: 227-534-9 CAS: 5873-54-1 Index: 615-005-00-9	<9,6	Acute Tox. 4, H332 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	C-2
2,2'-methylenediphenyl diisocyanate	REACH #: 01-2119927323-43 EC: 219-799-4 CAS: 2536-05-2	<3,6	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319	C-2

	Index: 615-005-00-9		Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373  <b>See Section 16 for the full text of the H statements declared above.</b>	
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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 damage to organs through prolonged or repeated exposure.  
 Suspected of causing cancer.  
 Causes skin irritation.  
 Causes serious eye irritation.  
 May cause respiratory irritation.  
 May cause an allergic skin reaction.  
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 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, CO<sub>2</sub>, 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** : This product is not classified as flammable. Fire will produce dense black smoke. Exposure to decomposition products may cause a health 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.  
When exposed to high temperatures, hazardous decomposition products may be produced, such as carbon monoxide and dioxide, smoke, oxides of nitrogen etc.

### 5.3 Advice for firefighters

**Special protective actions for fire-fighters** : 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** : 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** : 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. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid breathing vapor. 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. CO<sub>2</sub> 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). 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. 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: > 8 hours (breakthrough time): nitrile rubber (0,35 mm), butyl rubber (0,5 mm), fluor rubber (0,4 mm) (EN374). Not recommended: PVC or natural rubber (latex) gloves
- Skin protection** :  Wear suitable protective clothing.
- Respiratory protection** :  If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. 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 flattening is unavoidable, air-fed respiratory protective equipment (EN12941:1998) should be used during sanding. 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** : Brown.
- 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** : 39 to 43°C (4,4'-methylenediphenyl diisocyanate)
- Initial boiling point and boiling range** : >300°C (4,4'-methylenediphenyl diisocyanate)
- Flash point** :  100 °C
- Evaporation rate** :  Not relevant due the nature of the product.
- Flammability (solid, gas)** : Not applicable. Product is a liquid.

Upper/lower flammability or explosive limits	: No flammable ingredients present.
Vapor pressure	: ca. 11 hPA (20°C)
Vapor density	: 3,6 (4,4'-methylenediphenyl diisocyanate)
Density	: 1,23 g/cm <sup>3</sup>
Solubility(ies)	: Not available.
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: 601°C (4,4'-methylenediphenyl diisocyanate)
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** : 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.
- 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.

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.

#### Acute toxicity

Harmful if inhaled.

#### Irritation/Corrosion

Causes skin irritation. Causes serious eye irritation.

#### Sensitization

May cause an allergic skin reaction.

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

#### Mutagenicity

Not classified.

**Carcinogenicity**

Suspected of causing cancer.

**Reproductive toxicity**

Not classified.

**Teratogenicity**

Not classified.

**Specific target organ toxicity (single exposure)**

May cause respiratory irritation.

**Specific target organ toxicity (repeated exposure)**

May cause damage to organs through prolonged or repeated exposure.

**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** : No specific data.

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	Bioconcentration factor [BCF]	Potential
2,2'-methylenediphenyl diisocyanate	5,22	200	low
2,4'-methylenediphenyl diisocyanate	4,51	200	low
4,4'-methylenediphenyl diisocyanate	4,51	200	low

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

**12.5 Results of PBT and vPvB assessment**

**PBT** : Not applicable.

**vPvB** : Not applicable.

**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 disposed of in accordance with national regulations.

**Special precautions** : **Note!** The ready for use mixture of paint and hardener generates much heat. Allow the remainder of the mixture to harden in a safe place, e.g. in the open.

## SECTION 14: Transport information

This product is not regulated for carriage according to ADR/RID, IMDG, IATA.

	ADR/RID	IMDG	IATA
<b>14.1 UN number</b>	Not regulated.	Not regulated.	Not regulated.
<b>14.2 UN proper shipping name</b>	-	-	-
<b>14.3 Transport hazard class(es)</b>	-	-	-
<b>14.4 Packing group</b>	-	-	-
<b>14.5 Environmental hazards</b>	No.	No.	No.
<b>Additional information</b>	-	-	-

**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 : All components are listed or exempted.



Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Listed

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
⚠ Diphenylmethane-diisocyanate, isomers and homologues	Carc. 2, H351	-	-	-
4,4'-methylenediphenyl diisocyanate	Carc. 2, H351	-	-	-
2,4'-methylenediphenyl diisocyanate	Carc. 2, H351	-	-	-
2,2'-methylenediphenyl 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
Acute Tox. 4, H332		Calculation method
Skin Irrit. 2, H315		Calculation method
Eye Irrit. 2, H319		Calculation method
Resp. Sens. 1, H334		Calculation method
Skin Sens. 1, H317		Calculation method
Carc. 2, H351		Calculation method
STOT SE 3, H335		Calculation method
STOT RE 2, H373		Calculation method
<b>Full text of abbreviated H statements</b>	: 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.	
<b>Full text of classifications [CLP/GHS]</b>	: Acute Tox. 4, H332 Carc. 2, H351 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT RE 2, H373	ACUTE TOXICITY (inhalation) - Category 4 CARCINOGENICITY - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 RESPIRATORY SENSITIZATION - Category 1 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

STOT SE 3, H335

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

**Date of issue/ Date of revision** : 24-10-2016**Date of previous issue** : 24-02-2015**Version** : 1.01**Notice to reader**

This Safety Data Sheet is prepared in accordance with Annex II 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.