Date of issue/ Date of revision : 15-03-2017 **Date of previous issue** : 05-07-2016

SAFETY DATA SHEET

HARDENER 006 2098

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

1.1 Product identifier

Product name : HARDENER 006 2098

Product description : Hardener.

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

Identified uses
Uses in Coatings - Industrial 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 (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. 2, H225
Skin Irrit. 2, H315
Eye Irrit. 2, H319

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 : H225 - Highly flammable liquid and vapor.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.

Precautionary statements

General	:	Not applicable.
Prevention	:	P261 - Avoid breathing mist/vapors/spray. P280 - Wear protective gloves. P284 - In case of inadequate ventilation wear respiratory protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response	:	P305 + P351 - IF IN EYES: Rinse cautiously with water for several minutes.
Storage	:	Not applicable.
Disposal	:	Not applicable.
Supplemental label elements	:	Not applicable.

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
ethanol	REACH #: 01-2119457610-43 EC: 200-578-6 CAS: 64-17-5 Index: 603-002-00-5	≥50 - ≤75	Flam. Liq. 2, H225	-
p-toluenesulphonic acid	EC: 203-180-0 CAS: 104-15-4 Index: 016-030-00-2	≥10 - <20	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335	-
ethyl methyl ketone	REACH #: 01-2119457290-43 EC: 201-159-0 CAS: 78-93-3 Index: 606-002-00-3	≤3	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	-
isopropanol	REACH #: 01-2119457558-25 EC: 200-661-7 CAS: 67-63-0	≤3	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336	-
phosphoric acid	REACH #: 01-2119485924-24 EC: 231-633-2 CAS: 7664-38-2 Index: 015-011-00-6	≤3	Met. Corr. 1, H290 Skin Corr. 1B, H314	B
			See Section 16 for the full text of the H statements declared above.	

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.

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

Causes skin irritation.
Causes serious eye irritation.
Inhalation of vapours may cause dizziness, headache and nausea.
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_2, 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 : Highly 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 : 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 : 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 : 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 container for disposal according to local regulations. Preferably clean with a detergent. Avoid using solvents.

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.
Skin contact with the product and exposure to spray mist and vapor should be avoided. 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.

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). No smoking. Store and use away from heat, sparks, open flame or any other ignition source. 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) : See Appendices:
Uses in Coatings - Industrial use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
ethyl methyl ketone	**EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values** TWA: 200 ppm 8 hours. TWA: 600 mg/m³ 8 hours. STEL: 300 ppm 15 minutes. STEL: 900 mg/m³ 15 minutes.
phosphoric acid	**EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values** TWA: 1 mg/m³ 8 hours. STEL: 2 mg/m³ 15 minutes.

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

Product/ingredient name	Type	Exposure	Value	Population	Effects
p-toluenesulphonic acid	DNEL	Long term Dermal	7,6 mg/kg	Workers	Systemic
	DNEL	Long term Inhalation	53,6 mg/m³	Workers	Systemic
	DNEL	Long term Oral	2,5 mg/kg	Consumers	-
	DNEL	Long term Dermal	2,5 mg/kg	Consumers	Systemic
	DNEL	Long term Inhalation	8,7 mg/m³	Consumers	Systemic
ethyl methyl ketone	DNEL	Long term Dermal	1161 mg/	Workers	Systemic

			kg bw/day		
	DNEL	Long term Inhalation	600 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	412 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	106 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	31 mg/kg bw/day	Consumers	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
ethyl methyl ketone	Fresh water Marine water Fresh water sediment Soil Sewage Treatment Plant	55,8 mg/l 55,8 mg/l 284,7 mg/kg dwt 22,5 mg/kg wwt 409 mg/l	- - - - -

8.2 Exposure controls

Appropriate engineering controls

Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. Use explosion-proof ventilation equipment. If these are not sufficient to maintain concentrations of particulates and solvent vapours below the OEL, suitable respiratory protection must be worn (see Personal protection for both components). 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 : Wear protective gloves. 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
4 - 8 hours (breakthrough time): butyl rubber
> 8 hours (breakthrough time): laminated foil
Not recommended: PVA 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 respirators with combination filter A/P3 (EN405:2001). Wear a half mask or full face respirator with gas and vapor filter A and dust filter P2 during sanding (EN140:1998, EN405:2001). During continuous and long-term work the use of motor-driven or air-fed respirators is recommended (EN12941:1998). 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 : -114°C (ethanol)

Initial boiling point and boiling range : 78,29°C (ethanol)

Flash point : 13 °C (ethanol)

Evaporation rate : 1,7 (butyl acetate = 1) (ethanol)

Flammability (solid, gas)	:	Not applicable. Product is a liquid.
Upper/lower flammability or explosive limits	:	Lower: 3,3% (ethanol) Upper: 19% (ethanol)
Vapor pressure	:	5,7 kPa [room temperature] (ethanol)
Vapor density	:	1,6 (ethanol)
Density	:	0,87 g/cm³
Solubility(ies)	:	insoluble in water.
Partition coefficient: n-octanol/ water	:	Not available.
Auto-ignition temperature	:	455°C (ethanol)
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.

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

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.

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. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Ingestion may cause nausea, diarrhea and vomiting.

Acute toxicity

Not classified.

Irritation/Corrosion

Causes skin irritation. Causes serious eye irritation.

Sensitization

Not classified.

Mutagenicity

Not classified.

Carcinogenicity

Not classified.

Reproductive toxicity

Not classified.

Teratogenicity

Not classified.

Specific target organ toxicity (single exposure)

Not classified.

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 : No specific data.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	Bioconcentration factor [BCF]	Potential
isopropanol	0,05	-	low
ethyl methyl ketone	0,3	-	low
ethanol	-0,35	-	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

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 : Gather residues into waste containers. 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	II	II	II
14.5 Environmental hazards	No.	No.	No.
Additional information	**Special provisions** 640 (C) **Tunnel code** (D/E)	**Emergency schedules (EmS)** 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 : All components are listed or exempted.

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

Drug precursors : This product contains following subtance(s) that are listed in Annex I / Category 3 of the EU Regulation (EC) No 273/2004 on drug precursors:
ethyl methyl ketone

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. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method

Full text of abbreviated H statements :

H225	Highly flammable liquid and vapor.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Full text of classifications [CLP/GHS] :

EUH066	Repeated exposure may cause skin dryness or cracking.
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Met. Corr. 1, H290	CORROSIVE TO METALS - Category 1
Skin Corr. 1B, H314	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

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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.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	:	Mixture
Code	:	0062098
Product name	:	HARDENER 006 2098

Section 1 - Title

Short title of the exposure scenario	:	Exposure Scenario: Uses in Coatings - Industrial use.
List of use descriptors	:	**Identified use name:** Uses in Coatings - Industrial use. **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10 **Substance supplied to that use in form of:** In a mixture **Sector of end use:** SU03 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC04, ERC05 **Article category related to subsequent service life:** Not applicable.
Environmental contributing scenarios	:	
Health Contributing scenarios	:	
Processes and activities covered by the exposure scenario	:	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1:

Product characteristics	:	Liquid.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	:	Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils.
Organizational measures to prevent/limit release from site	:	Prevent environmental discharge consistent with regulatory requirements.
Conditions and measures related to external recovery of waste	:	External recovery and recycling of waste should comply with applicable local and/or national regulations. See section 13 for waste disposal information.
Suitable recovery operations	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 2:

Physical state	:	Liquid
Frequency and duration of use/exposure	:	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	:	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
Ventilation control measures	:	Material transfers Dedicated facility Non-dedicated facility Ensure material transfers are under containment or extract ventilation. Preparation of material for application Provide adequate ventilation.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Assumes a good basic standard of occupational hygiene is implemented
Personal protection	:	Tightly-fitting goggles Wear suitable gloves. Wear suitable protective clothing. Clean spills immediately. See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	See Section 8 of the safety data sheet (personal protective equipment).