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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1	Product identifier		
	Product name:	Formic acid 75% CAS No.: 64-18-6 EINECS No.: 200-579-1 Index No.: 607-001-00-0	
	Registration number:	01-2119491174-37-XXXX	
	Other means of identification:	not set	
1.2	Relevant identified uses of the substance or mixture and uses advised against		
	Identified uses:	substance for synthesis and/or formulation of industrial products	
	Uses advised against:	not set	
1.3	Details of the supplier of the safety data sheet		
	Distributor: <i>(responsible for marketing)</i>	VIA-REK, a.s. Ol. Blažka 145 679 02 Rájec-Jestřebí Czech Republic tel.: +420 516 499 945 / +420 516 499 955 fax: +420 516 499 948 / +420 516 499 933 web: www.via-rek.cz e-mail: expedice@via-rek.cz	
1.4	Emergency telephone number		
	Toxicological info center, Na Bojisti 1, 120 00 Praha 2, Czech Republic, +420 224 919 293, +420 224 915 402 (nonstop), e-mail: tis@mbox.cesnet.cz ,		

SECTION 2: HAZARDS IDENTIFICATION


General classification of the substance: the substance is classified as hazardous in compliance with Directive 67/548/EEC and 1999/45/EC, Regulation (EC) No 1907/2006 and Regulation (EC) No 1272/2008.

2.1	Classification of the substance or mixture		
	Classification in accordance with 1272/2008/EC:	Skin Corr. 1A H314	Skin corrosion/irritation, category 1 Causes severe skin burns and eye damage.
	Classification in accordance with 67/548/EEC and 1999/45/EC:	C Xn R20/22 R34	Corrosive Harmful Harmful by inhalation and if swallowed Causes burns

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according Regulation EC No. 1907/2006 (REACH), Regulation EC No. 1272/2008 (CLP)
and Commission Regulation EU No. 453/2010

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2.2	Label elements			
Contains:	Formic acid 75% CAS No.: 64-18-6 EINECS No.: 200-579-1 Index No.: 607-001-00-0			
Hazard pictograms:				
Signal word:	DANGER			
Hazard statements:	H314	Causes severe skin burns and eye damage.		
Supplemental hazard information:	EUH071	Corrosive to the respiratory tract.		
Supplemental label elements for certain mixtures:	not required			
Precautionary statements:	<p><u>Prevention:</u></p> <p>P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection. P260 Do not breathe mist or vapour. P270 Do not eat, drink or smoke when using this product. P264 Wash with plenty of water and soap thoroughly after handling.</p> <p><u>Response:</u></p> <p>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/physician. P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of soap and water. P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</p> <p><u>Storage:</u></p> <p>P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.</p> <p><u>Disposal:</u></p> <p>P501 Dispose of contents/container to hazardous or special waste collection point.</p>			
Other required labeling:	not required			
2.3	Other hazards			
The substance does not meet the PBT/vPvB criteria according to REACH, annex XIII; the substance is not included in the Candidate List of SVHC.				

SAFETY DATA SHEET

according Regulation EC No. 1907/2006 (REACH), Regulation EC No. 1272/2008 (CLP)
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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances						
Substance <i>REACH Registration number</i>	Content (% w/w)	EC Number CAS Number Index Number	Classification 67548/EEC 1999/45/EC*	Classification 1272/2008/EC*		Exposur e limits
formic acid <i>REACH 01-2119491174-37-XXXX</i>	> 75	200-579-1 64-18-6 607-001-00-0	R10 Xn; R20/22 C; R35	Flam. Liq. 3 Acute Tox. 3 Acute Tox. 4 Skin Corr. 1A Eye Dam. 1 -	H226 H331 H302 H314 H318 EUH071	Exp. lim. national/E C see 8.1
<i>Specific Concentration limits (Table 3.1, 1272/2008/EC)</i>			<i>Specific Concentration limits (Table 3., 1272/2008/EC)</i>			
$C \geq 90\%$ $10\% \leq C < 90\%$ $2\% \leq C < 10\%$	C; R35 C; R34 Xi; R36/38	$2\% \leq C < 10\%$ $2\% \leq C < 10\%$ C $\geq 90\%$ 10% $\leq C < 90\%$	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Corr. 1A; H314 Skin Corr. 1B; H314			

* For full wording of used Risk Phrases (R-phrases) and Hazard Statements (H-phrases) see Section 16.e.

3.2 Mixtures	not relevant
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SECTION 4: FIRST AID MEASURES

4.1	Description of first aid measures First aid personnel should pay attention to their own safety. Observe all user considerations and safety measures stated on the packaging. In case of any health problem or uncertainty seek medical attention and provide information from this Material Safety Data Sheet. Unconscious persons place in the stabilized position and observe the breathing. Never give any fluids to unconscious persons.
Inhalation:	Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If applicable, wash mouth or nasal cavities with water and apply inhalable corticosteroids. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
Skin contact:	Immediately remove all soiled or stained clothing. Wash the affected area immediately and repeatedly with water for 10 - 30 min.. Cover burned skin with sterile dressing. If the contaminated area is widespread and/or there is damage to the skin, a doctor must be consulted or the patient transferred to hospital. Use appropriate regenerating cream for irritated skin. Seek medical advice if the skin irritation persists.
Eye contact:	Keep eyelids open and rinse immediately and repeatedly with copious amount of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Immediately seek medical advice, even if only a small amount of the product had hit the eyes.
Ingestion:	If swallowed, rinse mouth with cold water and give 200 - 300 ml of water for drinking (only if the person is conscious) to attenuate the heating effect of the corrosive substance. Do not induce vomiting! Risk of GIT perforation! In case of vomiting avoid aspiration of the vomits. Do not give any food or activated charcoal. Get medical attention immediately and show product package or label!
4.2	Most important symptoms and effects, both acute and delayed Corrosive. Risk of GIT perforation!
4.3	Indication of any immediate medical attention and special treatment needed No specific therapy known. Use supporting and symptomatic treatment (decontamination, vital functions).

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SECTION 5: FIREFIGHTING MEASURES

5.1	Extinguishing media	
	Suitable extinguishing media:	water spray, alcohol resistant foam, carbon dioxide
	Unsuitable extinguishing media:	direct water stream
5.2	Special hazards arising from the substance or mixture	Flammable. Thermolysis or incomplete combustion may produce toxic, corrosive and irritant products (such as carbon monoxide, heavy smoke, aldehydes and other products).
5.3	Advice for fire-fighters	Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment, helmets and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	Personal precautions, protective equipment and emergency procedures	Observe all user considerations and safety measures. Avoid contact with skin, eyes and mucous membranes. Do not touch leaked substance with bare hands. See Section 8 for advice on the minimum requirements for personal protective equipment. All unprotected persons should be restrained. Do not inhale gases, vapours or aerosols. Ensure adequate ventilation in closed areas. Remove all sources of ignition (also all sources of static electric discharges). Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.
6.2	Environmental precautions	Stop leak if you can do so without risk. Confine the spill immediately with booms. Avoid entering soil, surface- and ground-waters, drains, cellars or other closed rooms. In case of serious leakage inform appropriate authorities. If you cannot stop the accidental leak, excessive dilution with water can reduce harmful effects in environment.
6.3	Methods and materials for containment and cleaning up	Soak up the rests with inert absorbent material (sand, diatomite, kaolin, vapex...). Dispose according to valid legislation; send to dangerous wastes treatment facility. Ensure adequate ventilation in closed areas. Clean up affected areas with large amount of water. Contaminated water should not enter drains, surface- and ground-waters.
6.4	Reference to other sections	Adhere to instructions in the section 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1	Precautions for safe handling	Observe all user considerations, safety measures and exposure limits. Avoid contact with skin, eyes and mucous membranes. Avoid eating, drinking, and smoking during handling. See Section 8 for advice on the minimum requirements for personal protective equipment. Prevent small spills and leakage to avoid slip hazard. Avoid breathing mists or vapours. Use only with adequate ventilation. Protection against fire and explosion: prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Sealed containers should be protected against heat as this results in pressure build-up.
7.2	Conditions for safe storage, including any incompatibilities	Store in closed original packages or in appropriately labelled alternate containers (suitable materials for containers: stainless steel 1.4571, stainless steel 1.4404, high density polyethylene (HDPE), low density polyethylene (LDPE), glass). Store in dry, bunded areas, with the ventilation at the floor level. Keep away from direct light and heat sources. Storage temperature: < 30 °C Storage duration: <= 36 Months. From the data on storage duration in this safety data sheet no agreed statement regarding the warranty of application properties can be deduced Keep locked out of the reach of children. Keep away from food, beverages and forage. Segregate from alkalis and alkalinizing substances.
7.3	Specific end uses	not specified

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1	<p>Control parameters</p> <p>National Exposure limits (Austria): (<i>Grenzwerteverordnung 2011 - GKV 2011 (Novelle zur GKV); BGBl. II Nr. 429/2011</i>)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">CAS</th> <th style="width: 35%;">Substance name</th> <th style="width: 50%;">NPEL</th> </tr> </thead> <tbody> <tr> <td>64-18-6</td> <td>formic acid</td> <td>OEL TWA (MAK, 8 h): 5 ppm / 9 mg.m⁻³ OEL STEL (MAK, actual value): 5 ppm / 9 mg.m⁻³</td> </tr> </tbody> </table> <p>Indicative occupational exposure limit ES (2000/39/EC, Directive 2006/15/EC and Directive 2009/161/EC):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">CAS</th> <th style="width: 35%;">Substance name</th> <th style="width: 50%;">OEL</th> </tr> </thead> <tbody> <tr> <td>64-18-6</td> <td>formic acid</td> <td>OEL TWA (8 h): 5 ppm / 9 mg.m⁻³ OEL STEL (min): -</td> </tr> </tbody> </table> <p>Other recommended values: not set</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">CAS</th> <th style="width: 35%;">Substance name</th> <th style="width: 50%;">OEL - equivalents</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <p>Indicative biological limits: not set</p> <p>DNEL:</p> <p><i>DNEL for workers</i></p> <table style="width: 100%;"> <tr><td>Inhalation DNEL (short term, systemic)</td><td style="text-align: right;">19 mg/m³</td></tr> <tr><td>Inhalation DNEL (short term, local)</td><td style="text-align: right;">19 mg/m³</td></tr> <tr><td>Inhalation DNEL (long term, systemic)</td><td style="text-align: right;">9,5 mg/m³</td></tr> <tr><td>Inhalation DNEL (long term, local)</td><td style="text-align: right;">9,5 mg/m³</td></tr> </table> <p><i>DNEL for the general population</i></p> <table style="width: 100%;"> <tr><td>Inhalation DNEL (short term, systemic)</td><td style="text-align: right;">9,5 mg/m³</td></tr> <tr><td>Inhalation DNEL (short term, local)</td><td style="text-align: right;">9,5 mg/m³</td></tr> <tr><td>Inhalation DNEL (long-term, systemic)</td><td style="text-align: right;">3 mg/m³</td></tr> <tr><td>Inhalation DNEL (long-term, local)</td><td style="text-align: right;">3 mg/m³</td></tr> </table> <p>PNEC:</p> <table style="width: 100%;"> <tr><td>fresh water:</td><td style="text-align: right;">2 mg/l</td></tr> <tr><td>marine water:</td><td style="text-align: right;">0,2 mg/l</td></tr> <tr><td>water - intermittent releases:</td><td style="text-align: right;">1 mg/l</td></tr> <tr><td>sediment - fresh water:</td><td style="text-align: right;">13,4 mg/l</td></tr> <tr><td>sediment - marine water:</td><td style="text-align: right;">1,34 mg/l</td></tr> <tr><td>soil:</td><td style="text-align: right;">1,5 mg/kg</td></tr> <tr><td>STP:</td><td style="text-align: right;">7,5 mg/l</td></tr> </table>	CAS	Substance name	NPEL	64-18-6	formic acid	OEL TWA (MAK, 8 h): 5 ppm / 9 mg.m ⁻³ OEL STEL (MAK, actual value): 5 ppm / 9 mg.m ⁻³	CAS	Substance name	OEL	64-18-6	formic acid	OEL TWA (8 h): 5 ppm / 9 mg.m ⁻³ OEL STEL (min): -	CAS	Substance name	OEL - equivalents	-	-	-	Inhalation DNEL (short term, systemic)	19 mg/m ³	Inhalation DNEL (short term, local)	19 mg/m ³	Inhalation DNEL (long term, systemic)	9,5 mg/m ³	Inhalation DNEL (long term, local)	9,5 mg/m ³	Inhalation DNEL (short term, systemic)	9,5 mg/m ³	Inhalation DNEL (short term, local)	9,5 mg/m ³	Inhalation DNEL (long-term, systemic)	3 mg/m ³	Inhalation DNEL (long-term, local)	3 mg/m ³	fresh water:	2 mg/l	marine water:	0,2 mg/l	water - intermittent releases:	1 mg/l	sediment - fresh water:	13,4 mg/l	sediment - marine water:	1,34 mg/l	soil:	1,5 mg/kg	STP:	7,5 mg/l
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8.2	<p>Exposure controls</p> <p>Avoid contact with skin, eyes and mucous membranes. Ensure adequate ventilation. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.</p> <p><u>Appropriate engineering controls:</u> Ensure adequate ventilation during handling and storage. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.</p>																																																

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Individual protection measures, such as personal protective equipment:

a) Eye / face protection

Always use safety glasses with side shields (EN 166) to protect against liquid splashes. Chemical type goggles should be worn during misting operations. Individuals wearing contact lenses should wear prescription glasses during work where they may be exposed to irritant vapours. Prescription glasses are not considered as protection. In the event of high danger, protect the face with a face shield.

b) Skin protection:

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN374. If contact with forearms is likely, wear gauntlet-style gloves. CEN standards EN 420 and EN 374 provide general requirements and lists of glove types. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and immediately replace worn or damaged gloves.

Recommended material of gloves:

accidents / long-term contact

protective index 6, permeation time > 480 min., chloroprene rubber > 0,5 mm, butylene rubber > 0,7 mm.

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit. Use appropriate protective clothes and boots (DIN EN 465).

c) Respiratory protection:

Do not inhale vapours/aerosols/gases. Ensure appropriate ventilation or exhaustion at the workplace. If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: half-face filter respirator, type B-E-P3 filter (European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 (STN EN 14387+A1) provide filter recommendations).

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

d) Thermal hazards:

Higher temperatures accelerate decompositions.

Environmental exposure controls:

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Properties	value	method / condition
Appearance:	liquid / water solution	20°C
Colour:	colourless to yellow	-
Odour:	pungent	-
Odour threshold:	information not available	-
pH:	2,2	20°C, 10 g/l
Melting point/freezing point:	-13 °C	-
Initial boiling point and boiling range:	107,3 °C	-
Flash point:	65 °C	DIN 51755
Evaporation rate:	information not available	-
Flammability (solid, gas)	information not available	-
Upper/lower flammability or explosive limits:	14,9 - 47,6 % vol.	-

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	Vapour pressure:	24,2 hPa 112,5 hPa	20°C 50°C
	Vapour density:	> 1	relative, air = 1
	Relative density:	1,177 g/cm ³	20°C
	Solubility/ies:	soluble in water without restraint	water, 20°C
	Partition coefficient: n-octanol/water:	log P _{o/w} = -1,9	23°C, pH = 5
	Auto-ignition temperature:	information not available	-
	Decomposition temperature:	information not available	-
	Viscosity:	dynamic	1,7 mPa.s 0,92 mPa.s
		kinematic	1,42 mm ² /s 0,8 mm ² /s
	Explosive properties:	information not available	-
	Oxidising properties:	information not available	-
9.2	Other information		
	ignition temperature:	500°C	DIN 51794

SECTION 10: STABILITY AND REACTIVITY

10.1	Reactivity No hazardous reactions if stored and handled as prescribed/indicated. Corrosion to metals: No corrosive effect on metal
10.2	Chemical stability Slow decomposition possible.
10.3	Possibility of hazardous reactions Reacts with alkalis. Reacts with amines. Exothermic reaction.
10.4	Conditions to avoid Keep away from direct light (sunlight) and heat/ignition sources. Temperature: > 30°C.
10.5	Incompatible materials bases, non-coated metals, base metals
10.6	Hazardous decomposition products Thermolysis or incomplete combustion may produce toxic, corrosive and irritant products (such as carbon monoxide, heavy smoke, aldehydes and other products).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1	Information on toxicological effects
	<p>a) <i>Acute toxicity</i> Harmful if swallowed. Toxic if inhaled. Observed toxic effects are mainly due corrosive and irritant effects of the substance.</p> <p><u>Oral</u> Type of value: LD50 Species: rat (male/female) Value: 730 mg/kg (OECD Guideline 401)</p>

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	<p><u>Inhalation</u> Type of value: LC50 Species: rat (male/female) Value: 7,3 mg/l (BASF-Test) Exposure time: 4 h</p> <p><u>Dermal</u> Study scientifically not justified.</p>
b)	<p><i>Skin corrosion/irritation;</i> Highly corrosive! Causes severe skin burns. May cause irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following exposure for up to three minutes. Corrosive reactions are typified by ulcers, bleeding, bloody scabs, complete areas of alopecia, and scars.</p> <p><u>Skin</u> Species: rabbit Result: Corrosive. Method: OECD Guideline 404 Literature data</p>
c)	<p><i>Serious eye damage/irritation;</i> Highly corrosive! Causes severe eye damage. Small splashes can cause feelings of burn, redness and blurred vision.</p> <p><u>Eye</u> As the product corrodes the skin, it can be expected to have a similar effect on the eyes also</p>
d)	<p><i>Respiratory or skin sensitisation;</i> Based on available data, the classification criteria are not met. Skin sensitizing effects were not observed in animal studies.</p> <p><u>Buehler test</u> Species: guinea pig Result: Non-sensitizing. Method: OECD Guideline 406</p>
e)	<p><i>Germ cell mutagenicity</i> Based on available data, the classification criteria are not met. No mutagenic effect was found in various tests with bacteria and mammalian cell culture. Genetic toxicity in vitro: Ames-test with and without metabolic activation negative Cytogenetic assay with and without metabolic activation negative. Literature data.</p>
f)	<p><i>Carcinogenicity</i> Based on available data, the classification criteria are not met. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The results of various animal studies gave no indication of a carcinogenic effect.</p>
g)	<p><i>Reproductive toxicity</i> Based on available data, the classification criteria are not met. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The results of animal studies gave no indication of a fertility impairing effect. No indications of a developmental toxic / teratogenic effect were seen in animal studies.</p>
h)	<p><i>STOT-single exposure</i> Based on available data, the classification criteria are not met. Based on the available information there is no specific target organ toxicity to be expected after a single exposure.</p>
i)	<p><i>STOT-repeated exposure</i> Based on available data, the classification criteria are not met. Repeated exposure causes mainly burns.</p>
j)	<p><i>Aspiration hazard</i> Based on available data, the classification criteria are not met. Inhalation of liquid or gases in high concentration can cause severe lung damage and mucosal burns.</p>

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SECTION 12: ECOLOGICAL INFORMATION

12.1	<p>Toxicity Assessment of aquatic toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms. Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations. The product gives rise to pH shifts.</p> <p><u>Toxicity to fish</u> LC50 (96 h) 130 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 92/69/EEC, C.1, static) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.</p> <p>LC50 (96 h) 68 mg/l, Leuciscus idus (DIN 38412 Part 15, static) The details of the toxic effect relate to the nominal concentration. After neutralization, it is no longer toxic.</p> <p><u>Aquatic invertebrates</u> EC50 (48 h) 365 mg/l, Daphnia magna (OECD Guideline 202, part 1, static) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.</p> <p>EC50 (48 h) 32,19 mg/l, Daphnia magna (Directive 79/831/EEC, static) The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.</p> <p><u>Aquatic plants</u> EC50 (72 h) 1,240 mg/l (growth rate), Selenastrum capricornutum (OECD Guideline 201, static) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.</p> <p>EC50 (72 h) 32.64 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static) The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.</p> <p><u>Chronic toxicity to aquatic invertebrates</u> No observed effect concentration (21 d) \geq 102 mg/l, Daphnia magna (OECD Guideline 211, semistatic) The statement of the toxic effect relates to the analytically determined concentration. The product will cause changes in the pH value of the test system. The result refers to a neutralized sample. No effects at the highest test concentration.</p> <p><u>Microorganisms/Effect on activated sludge</u> other aerobic activated sludge, domestic, non-adapted/EC10 (13 d): 72 mg/l</p> <p>DIN EN ISO 8192 aerobic activated sludge, industrial/EC20 (0.5 h): $>$ 1000 mg/l The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.</p> <p>DIN 38412 Part 8 aerobic bacterium/EC50 (17 h): 46,7 mg/l The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.</p>
12.2	<p>Persistence and degradability Readily biodegradable (according to OECD criteria). Elimination information: 100 % DOC reduction (9 d) (OECD 301E/92/69/EEC, C.4-B) (aerobic, municipal sewage treatment plant effluent)</p>
12.3	<p>Bioaccumulative potential Bioaccumulation is not expected. No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).</p>
12.4	<p>Mobility in soil No data for the substance. The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.</p>

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12.5	Results of PBT and vPvB assessment The substance does not meet the PBT/vPvB criteria according to REACH, annex XIII; the substance is not included in the Candidate List of SVHC.
12.6	Other adverse effects not known

SECTION 13: DISPOSAL CONSIDERATIONS





13.1	<p>Waste treatment methods Proper waste management of the substance and/or its container must be determined in accordance with Directive 2008/98/EC. Avoid entering soil, drains, surface- and ground-waters. Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals. Product and packages should be disposed in a certified hazardous waste facility. According to the European Waste Catalogue waste codes are not specific for product, but for its use. Therefore, appropriate waste code should assign final user according to his specific use.</p> <p><u>Proposed waste classification:</u> Dangerous waste according 2008/98/EC.</p> <p>07 WASTES FROM ORGANIC CHEMICAL PROCESSES</p> <p>07 01 wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</p> <p>07 01 08 other still bottoms and reaction residues</p> <p><u>Contaminated packages:</u> Wash empty packages with water and recycle. Contaminated packages are considered as dangerous waste according 2008/98/EC.</p> <p>15 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</p> <p>15 01 packaging (including separately collected municipal packaging waste)</p> <p>15 01 10 packaging containing residues of or contaminated by dangerous substances (contaminated packages)</p> <p>15 01 02 (cleaned packages)</p>
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SECTION 14: TRANSPORT INFORMATION

The substance is classified as dangerous for transport according to ADR/RID/IMDG/ICAO/IATA.

14.1	UN Number: UN 3412			
14.2	UN proper shipping name			
	<i>Road transport ADR</i>	<i>Rail transport RID</i>	<i>International maritime transport IMDG</i>	<i>Air transport ICAO/IATA</i>
	FORMIC ACID	FORMIC ACID	FORMIC ACID	FORMIC ACID
14.3	Transport hazard class(es)			
	<i>Road transport ADR</i>	<i>Rail transport RID</i>	<i>International maritime transport IMDG</i>	<i>Air transport ICAO/IATA</i>
	8	8	8	8
	Classification code			
	C3	C3	C3	C3
	Hazard identification number (Kemler)			
	80	80	-	-

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	Labels			
				
14.4	Packing group			
	<i>Road transport ADR</i>	<i>Rail transport RID</i>	<i>International maritime transport IMDG</i>	<i>Air transport ICAO/IATA</i>
	II	II	II	II
14.5	Environmental hazards: no			
14.6	Special precautions for user: Tunnel restriction code: D/E Limited and restricted quantity: 1 I / E2 Transport category: 2			
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: not transported			

SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture
	<p><u>Relevant legislation European Union:</u></p> <ul style="list-style-type: none"> - Regulation (EC) No 1907/2006 of the European Parliament and of the , concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) - Regulation EC No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 - Commission Regulation (ES) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) - Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations - Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances - Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC - Commission Directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC - Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations - Bundesgesetz über den Schutz des Menschen und der Umwelt vor Chemikalien (Chemikaliengesetz 1996 - ChemG 1996) StF: BGBl. I Nr. 53/1997 - Verordnung des Bundesministers für Arbeit, Soziales und Konsumentenschutz über Grenzwerte für Arbeitsstoffe sowie über krebserzeugende und fortpflanzungsgefährdende (reproduktionsstoxische) Arbeitsstoffe (Grenzwertverordnung 2011 – GKV 2011) StF: BGBl. II Nr. 253/2001 - Verordnung des Bundesministers für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft über die Nachweispflicht über Abfälle (Abfallnachweisverordnung 2012 – ANV 2012) StF: BGBl. II Nr. 341/2012 - Bundesgesetz über Sicherheit und Gesundheitsschutz bei der Arbeit (ArbeitnehmerInnenschutzgesetz - ASchG) StF: BGBl. Nr. 450/1994
15.2	Chemical safety assessment Chemical safety assessment was carried; however not available now.

SECTION 16: OTHER INFORMATION

a)	<i>Changes made to the previous version of the safety data sheet</i> Update section 14.1 ; 14.3
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b) Key or legend to abbreviations and acronyms used in the safety data sheet

C	Corrosive
Xn	Harmful
Xi	Irritant
Flam. Liq. 3	Flammable liquid, category 3
Acute Tox. 3	Acute toxicity, category 3 (Inhalation - vapour)
Acute Tox. 4	Acute toxicity, category 4 (oral)
Skin Corr. 1A	Skin corrosion/irritation, category 1A
Skin Corr. 1B	Skin corrosion/irritation, category 1B
Skin Irrit. 2	Skin corrosion/irritation, category 2
Eye Dam. 1	Serious eye damage/eye irritation, category 1
Eye Irrit. 2	Serious eye damage/eye irritation, category 2
Exp. lim.	Exposure limit
MAK	Highest occupational exposure limit
OEL	Occupational exposure limit
PBT	Substances persistent, bioaccumulative and toxic
vPvB	Substances very persistent and very bioaccumulative
VOC	Volatile organic compound
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
LD50	Median lethal Dose
LC50	Median lethal concentration
EC50	Half maximal effective concentration
IC50	Half maximal inhibitory concentration
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	International Rule for Transport of Dangerous Substances by Railway
IMDG	International Maritime Dangerous Goods Code
ICAO	International Civil Aviation Organization
IATA	International Air Transport Association

c) Key literature references and sources for data

Not indicated

d) Methods of evaluating information used for the purpose of classification

The substance was classified by expert judgment and conventional calculations methods in accordance with the Directive with 67/548/EEC and 1999/45/EC and Regulation EC No. 1272/2008 (CLP).

e) Full wording of used Risk Phrases (R-phrases) and Hazard Statements (H-phrases)

R10	Flammable
R20/22	Harmful by inhalation and if swallowed
R34	Causes burns
R34	Causes serious burns
R36/38	Irritating to eyes and skin
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.

EUH 071 – Corrosive to the respiratory tract.

f) Advice on any training appropriate for workers

Before handling, storing or using the present substance for the first time, employees must be informed -common training for handling hazardous substances and usual occupational safety training.

SAFETY DATA SHEET

according Regulation EC No. 1907/2006 (REACH), Regulation EC No. 1272/2008 (CLP)
and Commission Regulation EU No. 453/2010

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g) Other information

Material Safety Data Sheet is compiled in accordance with the Regulation EC No. 1907/2006 (REACH), Regulation EC No. 1272/2008 (CLP) and Commission Regulation EU No. 453/2010, and contains information on safety use, occupational health protection, and environmental protection. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. This particular information applies on the product as supplied and may not be valid in mixtures with other substances. If used for other purposes as identified in this MSDS, the distributor is not liable for any damage.

The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.