Perstorp
WINNING FORMULAS

Safety data sheet
according to 1907/2006/EC, Article 31

Version: 1 Revision: 17.02.2011

*

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

· **Product name: Formic Acid 85%**

· **Product identifier**
Formic acid
Cas No.: 64-18-6
EC Number: 200-579-1

· **Registration number** 01-2119491174-37-0001

· **Relevant identified uses of the substance or mixture and uses advised against**
Manufacture of substances
Distribution and storage
Formulations

· **Industrial use**
Use:
as an intermediate
as a processing aid
in coatings
in cleaning agents
in laboratories
for polymer processing
Manufacture:
of polymers including resins

· **Professional use**
Use:
as a preserving agent
as a processing aid
in animal nutrition
in cleaning agents
in laboratories
for polymer processing

· **Consumer use**
Use:
as a preserving agent
as a processing aid
in animal nutrition
in cleaning agents

· **Uses advised against** Not identified.

· **Application of the substance / the preparation**
Intermediate for organic synthesis
Textile auxiliary
Preservative
Cleaning material/ Detergent

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**
Perstorp Specialty Chemicals AB
SE-284 80 Perstorp, Sweden
Tel. +46 435 38000
Fax +46 435 38100
www.perstorp.com

· **Further information obtainable from:** productinfo@perstorp.com

· **Emergency telephone number:** (Int.) +46 8 337043 (Emergency Response Center, Sweden)

*

2 Hazards identification

· **Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

GHS05 corrosion

(Contd. on page 2)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 1)

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

C; Corrosive

R34: Causes burns.

· **Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

· **Hazard pictograms**

GHS05

· **Signal word** Danger

· **Hazard-determining components of labelling:**

formic acid 85%

· **Hazard statements**

H314 Causes severe skin burns and eye damage.

· **Precautionary statements**

P280	Wear protective clothing and eye protection.
P260	Do not breathe mist/vapours/spray.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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.

· **Hazard description:**

Inhalation:
Inhalation of vapours may cause smarting pain in nose and throat, cough and hoarseness. Inhalation of high concentrations may also cause pulmonary oedema that may occure after several hours. Prolonged and repeated contact with vapours may cause inflammtion in nose and throat, chronic bronchitis and dental corrosion.

Skin contact:
Skin contact may cause severe burns with redness, smarting pain and wounds. Prolonged and repeated contact with vapours may cause calluses.

Eye contact:
Splashes causes intensive pain and corneal burns. Risk of permanent eye damage. Vapours may be substantially irritating.

Ingestion:
Ingestion may cause severe burns with burning pain, vomiting and eventually chock and kidney damage. Risk of permanent damage due to scarring of the esophagus and stomach.

· **Other hazards** Fumes can combine with air to form an explosive mixture.

· **Results of PBT and vPvB assessment**

· **PBT:** No.

· **vPvB:** No.

(Contd. on page 3)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 2)

*
3 Composition/information on ingredients

· **Chemical components:**

CAS: 64-18-6 EINECS: 200-579-1 Reg.nr.: 01-2119491174-37-0001	formic acid C R35 Skin Corr. 1A, H314	80-89%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

*
4 First aid measures

· **Description of first aid measures**
· **General information:**
Begin first-aid measures immediately!
In case of unconsciousness place patient stably in side position for transportation.
Apply artificial respiration if necessary.
First aid personnel should pay attention to their own safety.
Emergency shower and eye wash facilities must exist on work place.
· **After inhalation:**
Move to fresh air.
In case of unconsciousness place patient stably in side position for transportation.
Seek immediate medical advice.
· **After skin contact:**
Important! Immediately flush skin with water and rinse skin with soap and water for at least 15 minutes. Use lukewarm water if possible. Remove contaminated clothing and shoes. Get medical attention immediately.
Cover wound with a sterile dressing.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
· **After eye contact:**
Important! Immediately rinse cautiously with tempered water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Always obtain medical advice immediately, even if there are no symptoms.
Risk of permanent eye damage.
· **After swallowing:**
Rinse mouth then drink plenty of water.
Do not induce vomiting; call for medical help immediately.

*
5 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Carbon monoxide (CO)
Carbon dioxide (CO2)
· **Advice for firefighters**
· **Protective equipment:**
Respiratory protective device.
Wear fully protective suit.
· **Additional information**
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 3)

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear full protective clothing and self contained breathing apparatus.
Wear acid resistant boots.
Keep unprotected persons away.
· **Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
· **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Small spill:
Dilute with plenty water.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).
Large spill:
Pump up the product into a spare container suitably labelled.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

*
7 Handling and storage

· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
If possible, use only in closed system.
Before handling, investigate the hazards and risk of using this product at your work place.
· **Information about fire - and explosion protection:**
Protect from heat.
Fumes can combine with air to form an explosive mixture.
Protect against electrostatic charges.
Keep ignition sources away - Do not smoke.

· **Conditions for safe storage, including any incompatibilities**
Store segregated from:
- acids
- bases.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Store only in the original receptacle.
Prevent any seepage into the ground.
· **Further information about storage conditions:**
Store in a cool place. Heat will increase pressure and may lead to the receptacle bursting.
Danger of bursting when sealed gastight.
· **Specific end use(s)** For details, see the separate exposure scenario(s).

*
8 Exposure controls/personal protection

· **Control parameters**
Keep personal exposure levels below Derived No Effect Level (DNEL) and national exposure limit values (if existing).

· **Ingredients with limit values that require monitoring at the workplace:**	
64-18-6 formic acid	
WEL (Great Britain)	Long-term value: 9.6 mg/m³, 5 ppm
IOELV (EU)	Long-term value: 9 mg/m³, 5 ppm

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 4)

· **DNELs**		
64-18-6 formic acid		
Inhalative	DNEL acute local eff	17 mg/m³ (WRk)
		9.5 mg/m³ (general public)
	DNEL long term local	9.5 mg/m³ (workers)
		3 mg/m³ (general public)

· **PNECs**	
64-18-6 formic acid	
PNEC STP	7.2 mg/l (-)
PNEC freshwater	2 mg/l (-)
PNEC intermittent	1 mg/l (-)
PNEC marine water	0.2 mg/l (-)
PNEC sediment (FW)	13.4 mg/kg dw (-)
PNEC sediment (MW)	1.34 mg/kg dw (-)

· **Additional information:**
Ensure that eyewash stations and safety showers are proximal to the work-station location.

· **Exposure controls**
Keep personal exposure levels below Derived No Effect Level (DNEL) by wearing personal protective equipment mentioned below.
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
Suitable respiratory protection for lower concentrations or short-term exposure:
Gas filter for gases/vapours of organic compounds (boiling point >65°C, e. g. EN 14387 Type A)
Suitable respiratory protection for higher concentrations or long-term exposure:
Self-contained breathing apparatus.
· **Protection of hands:**

Protective gloves

· **Material of gloves**
Suitable materials also with prolonged, direct contact (protective index 6, corresponding > 480 minutes of permeation time according to EN 374):
Chloroprene rubber, CR
Recommended thickness of the material: ≥ 0.55 mm
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.8 mm
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles

Face protection

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 5)

· **Body protection:**
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes).
· **Risk management measures** For details, see the separate exposure scenario(s).

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Colour:	Colourless
· **Odour:**	Pungent
· **Odour threshold:**	> 11 ppm
· **pH-value at 20°C:**	-1.5
· **Change in condition**	
Melting point/Melting range:	<-20°C
Boiling point/Boiling range:	107°C (OECD 103)
· **Flash point:**	62°C (ASTM D 7094-04)
· **Flammability (solid, gaseous):**	Not applicable
· **Ignition temperature:**	>500°C (ASTM E 659-78)
· **Danger of explosion:**	The product is not explosive. However, formation of explosive air-vapour mixtures are possible.
· **Explosion limits:**	
Lower:	18 Vol %
Upper:	57 Vol %
· **Oxidizing properties**	Not applicable
· **Vapour pressure at 25°C:**	5.7 kPa (litt.)
· **Density at 20°C:**	1.19 g/cm3 (ISO 2811-2)
· **Solubility in / Miscibility with water at 20°C:**	100 % (OECD 105)
· **Partition coefficient (n-octanol/water) at 20°C:**	-0.6 log Pow (OECD 107)
· **Viscosity:**	
Dynamic at 20°C:	1.6 mPas (ISO 3219)

*

10 Stability and reactivity

· **Reactivity**
The substance may act as a source for a formyl group or a hydride ion.
Due to its high acidity, its solutions in alcohols form esters spontaneously.
Formic acid has as well reducing properties and can reduce solutions of gold, silver, and platinum to the metals.
Formic acid has ability to participate in addition reactions with alkenes. The substance and alkenes readily react to form formate esters.
· **Chemical stability** The product is stable under normal conditions of use and storage.
· **Possibility of hazardous reactions**
Exothermic polymerization.
Violent reactions with strong alkalis and oxidizing agents.

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 6)

Reacts with metals forming hydrogen.
Mixes with high formic acid content can decompose spontaneously and create overpressure and receptacle burst. Sunlight and heat increase the risk of decomposition.
· **Conditions to avoid** Direct sunlight and heat.
· **Incompatible materials:**
Formic acid may react with alkalies and oxidizing materials such as peroxides, nitric acid, and chromic acid. It is also incompatible with concentrated sulphuric acid, nitromethane, finely powdered metals, permanganates, strong bases and oxidizing agents.
· **Hazardous decomposition products:** Carbon monoxide

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values:**		
64-18-6 formic acid		
Oral	LD50	730 mg/kg (rat) (OECD 401)
Dermal	LD50	940 mg/kg (mouse)
Inhalative	LC50/4h	7.4 mg/l (rat) (OECD 403)

· **Primary irritant effect:**
· **on the skin:** Corrosive effect on skin and mucous membranes.
· **on the eye:** Strong corrosive effect.
· **Inhalation:**
May give smarting pain in nose and throat, headache, tiredness, dizziness and coughing. High concentration can give difficulties in breathing.
· **Sensitisation** No skin sensitisation. (OECD 406)

· **Repeated dose toxicity**		
64-18-6 formic acid		
Oral	LOAEL/2yrs	2000* mg/kg bw/d (rat) (OECD 453)
	NOAEL/2yrs	400* mg/kg bw/day (rat) (OECD 453)
Inhalative	LOAEL local/90d	0.244 mg/l (rat) (OECD 413)
	NOAEL local/90d	0.122 mg/l (rat) (OECD 413)
	NOAEL systemic/90d	0.244 mg/l (rat) (OECD 413)

· **Carcinogenicity:**
No carcinogenic effects have been observed.
(OECD 413)
· **Mutagenicity:**
The product is not considered to be mutagenic.
Not mutagenic in Bacterial Reverse Mutation Assay. (OECD 471)
The substance is not clastogenic. Mammalian Chromosomal Aberration Test (OECD 473).
Not mutagenic in mammalian cells. (OECD 476)
The substance did not induce sister chromatid exchange. (OECD 479)
Did not induce mutations in the Drosophila SLRL test in vivo. (OECD 477)
· **Reproductive toxicity:**
No impairment of fertility has been observed.
No embryotoxic or teratogenic effects have been observed.

64-18-6 formic acid		
Oral	NOAEL Development	667 mg/kg bw/day (rabbit) (OECD 414)
	NOAEL Fertility	650 mg/kg bw/day (rat) (OECD 416)

· **Remark:** * read-across from supporting substance (structural analogue)

(Contd. on page 8)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 7)

*
12 Ecological information

· **Toxicity**
· **Aquatic toxicity:**
Low toxicity to aquatic organisms.

64-18-6 formic acid	
EC50/48h	365* mg/l (Daphnia magna) (OECD 202)
EC50/72h	1240* mg/l (Pseudokirchnerella subcapitata) (OECD 201)
LC50/96h	130* mg/l (Danio rerio) (OECD 203)
NOEC	<76.8* mg/l (Pseudokirchnerella subcapitata) (OECD 201)
	180* mg/l (Daphnia magna) (OECD 202)
	90* mg/l (Danio rerio) (OECD 203)
NOEC/21d	≥100 mg/l (Daphnia magna) (OECD 211)

· **Persistence and degradability**
The product is readily biodegradable.

64-18-6 formic acid	
BOD28	100 % (-) (OECD 301C)
	>98 % (activated sludge) (EU Method C.4-B)

· **Behaviour in environmental systems:**
· **Bioaccumulative potential**
Low potential for accumulation in organisms

64-18-6 formic acid	
BCF	0.22 (-)
log Pow	-0.54 (calculated)

· **Mobility in soil**
The substance does not adsorb to suspended solids and sediment based upon the log Koc which indicates a high mobility in soil.

64-18-6 formic acid	
Log Koc	1.49 (-) (calc)

· **Ecotoxicological effects:**

· **Behaviour in sewage processing plants:**	
64-18-6 formic acid	
NOEC/13d	72 mg/l (activated sludge) (EU Method C.3)

· **Results of PBT and vPvB assessment**
· **PBT:** No.
· **vPvB:** No.
· **Other adverse effects**
Emissions to water lowers the pH. This may cause local damage to fish and aquatic organisms in the discharge area.
· **Remark:** * read-across from supporting substance (structural analogue)

*
13 Disposal considerations

· **Waste treatment methods**
· **Recommendation**
The product is classified as hazardous waste and must be disposed of as such.
Incinerate at a licensed installation.

· **European waste catalogue**	
07 01 08*	other still bottoms and reaction residues

(Contd. on page 9)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 8)

· **Uncleaned packaging:**
Thoroughly emptied and clean packaging may be recycled.
Contaminated packaging materials must be disposed of in the same manner as the product.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

*

14 Transport information

· **Land transport ADR/RID (cross-border)**

· **ADR/RID class:**	8 Corrosive substances.
· **Hazard Identification number:**	83
· **UN Number :**	1779
· **Packing group :**	II
· **Hazard label :**	8+3
· **Proper shipping name (Technical Name) :**	FORMIC ACID
· **Limited quantities (LQ)**	LQ22
· **Tunnel restriction code :**	D/E

· **Maritime transport IMDG:**

· **IMDG Class:**	8
· **UN Number:**	1779
· **Hazard label :**	8+3
· **Packing group:**	II
· **Proper shipping name (Technical Name) :**	FORMIC ACID

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:**	8
· **UN Number :**	1779
· **Hazard label :**	8+3
· **Packing group:**	II
· **Proper shipping name (Technical Name) :**	FORMIC ACID

*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.
Council Directive 94/33/EC on the protection of young people at work.
Commission Regulation No 10/2011 relating to plastic materials and articles intended to come into contact with food.

(Contd. on page 10)

Safety data sheet
according to 1907/2006/EC, Article 31

17.02.2011 Version: 1 Revision: 17.02.2011

Product name: Formic Acid 85%

(Contd. of page 9)

Council Directive 76/768/EEC on the approximation of the laws of the Member States relating to cosmetic products.
Regulation (EC) No 1223/2009 of the European Parliament and of the Council on cosmetic products.

· **Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

*
16 Other information

This Safety Data Sheet is not a Product Specification. It is based on our present knowledge and experience and it is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.

Formic acid (E236) 85%
Feed preservative
Used as preservative in feed and as silage additive.
For all animal species and categories.

Net Vol: As per Freight documents
Batch number: As stated on Certificate of Analysis
Date of manufacture: Not earlier than one month prior to loading date
Shelf life: 36 months from loading date

· **Relevant phrases**
H314 Causes severe skin burns and eye damage.
R35 Causes severe burns.

· **Department issuing SDS:** Corporate EHSQ Perstorp Holding AB
· *** Data compared to the previous version altered.**