



# SAFETY DATA SHEET

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Publishing date: 17.05.2012  
Date of printing: 29.06.2014  
In accordance with regulation (EC) no. 1907/2006 (REACH)

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## 1. Identification of the substance/preparation and the company/undertaking

### Identification of the substance:

Product name: REVOSOLV F2

Identification number: C2 521

### Recommended uses:

Stripping formulations, cleaning, industrial clearing, paint and resins removal

### Information of the supplier:

ECP, d.o.o.

Brnčičeva 45

1231 Ljubljana

Information:

Tel.: +386 (0)1 562 05 84

Fax.: +386 (0)1 562 05 85

e-mail: office@ecp.si

01 562 05 84 (08-16h)

### Emergency information:

In case of poisoning visit doctor in the nearest medical center. In case of emergency call national center for poisoning (in Slovenia tel.: +386 (0)1 434 76 45 (or tel.: 112)), or ECP, d.o.o., Brnčičeva 45, Ljubljana Tel.: +386 (0)1 562 05 84

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## 2. Hazards identification:

### 2.1 Classification of the substance or mixture

Flammable (when hot)

Thermal decomposition giving flammable and toxic products

Decomposition products: see chapter 10

This substance is not classified as dangerous according to Directive 1999/45/EC.

### 2.2 Label elements

Labeling (REGULATION (EC) No 1272/2008)

Not a dangerous substance according to GHS.

Labeling (67/548/EEC or 1999/45/EC)

The product does not need to be labeled in accordance with EC directives or respective national laws.

### 2.3 Other hazards

Slightly irritating to eyes.

Harmful to aquatic organisms.

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## 3. Composition / information on ingredients

### Chemical nature of the preparation:

Name	EC Nr.	GHS hazard statements	Concentration
Dimethyl sulfoxide	200-664-3	/	> 50%
Pentanedioic acid, 2-methyl-, 1,5-dimethyl ester	906-170-0	/	< 40%
Propylene glycol monomethylether	107-98-2	H226	< 35 %
Activator		H332,H302, H312, H314	< 1 %



**Classification: In accordance with directive 1272/2010/EC**

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**Classification: In accordance with directive 67/548/EEC**

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For the full text of the H-Statements mentioned in this Section, see Section 16

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## 4. First aid measures

### 4.1 Description of first aid measures

General advice: Take off immediately all contaminated clothing.

After inhalation: Move to fresh air

Oxygen or artificial respiration if needed

In case of persistent problems: Consult a physician.

After skin contact: wash off with plenty of water and soap. Remove contaminated clothing.

After eye contact: rinse out with plenty of water. If irritation persists, consult an ophthalmologist.

After swallowing: immediately make victim drink water (two glasses at most). Do not induce vomiting, Hospitalize

### 4.2 Most important symptoms and effects, both acute and delayed

Irritant effects, CNS disorders, Nausea, Headache, Tiredness

### 4.3 Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Get medical attention.

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## 5. Fire-fighting measures

### 5.1 Extinguishing media

Suitable extinguishing media:	Foam
	Dry chemical
	Carbon dioxide (CO <sub>2</sub> )
	Water fog or fine spray
Unsuitable extinguishing media	direct water stream

### 5.2 Special hazards arising from the substance or mixture

Flammable liquid (when hot)

Thermal decomposition giving toxic products: Sulphur oxides, Nitrogen oxides, carbon monoxide, carbon dioxide

### 5.3 Advice for firefighters

Special protective equipment for firefighters

Wear a self-contained breathing apparatus and protective suit

Further information

Suppress (knock down) gases/vapours/mists with a fine water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system. Collect contaminated fire extinguishing water separately.

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## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Prohibit all sources of sparks and ignition - Do not smoke.

Avoid contact with skin and eyes and inhalation of vapours.

Use personal protective equipment.

### 6.2 Environmental precautions

Do not release into the environment

Do not let the product enter into drains

Dam up with sand or inert earth (do not use combustible materials).



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## 6.3 Methods and materials for containment and cleaning up

Recovery	Recover the product
	Sweep up to prevent slipping hazard.
	Pump into a labeled inert emergency tank
	Absorb the remainder with an inert absorbent material
	Shovel or sweep up.
	Shovel into suitable container for disposal.
Elimination	After cleaning, flush away traces with water.
	Dilute with water.
	Recover waste water for processing later.
	Destroy the product by incineration (in accordance with local and national regulations).
	Destroy absorbed product by incineration at an approved waste disposal site only
	In accordance with local and national regulations.
	Treat waste water with : bleach (diluted solutions)
	Dispose of rinse water as waste water.

## 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## 7. Handling and storage

### 7.1 Precautions for safe handling

Technical measures/Precautions	Storage and handling precautions applicable to products :LIQUID Flammable (when hot). With vapours explosive in air. Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths.
Safe handling advice	Keep well away from flames. Prohibit all sources of sparks and ignition - Do not smoke. Only use safety equipment.

### 7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions	Keep tightly closed in a dry, cool and well-ventilated place. Store away from heat and ignition sources Provide a catch-tank in a bonded area. Storage temperature: > 10 °C
Incompatible products	Prevent accidental discharge of product into drains and waterways Halogenated organic and mineral acids (Sulphur, phosphorus) Methyl bromide, Sodium hydride, Zinc, Steel (in the presence of water), Copper, Aluminum and alloys, Strong acids : Perchloric acid, periodic acid, Strong oxidizers

### 7.3 Specific end uses

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## 8. Exposure controls / personal protection

### 8.1 Control parameters

Exposure Limit Values:	DIMÉTHYL SULFOXYDE Value recommended by the "Exposure Limit Value Committee" of ARKEMA TWA = 300 ppm WEEL(2006), 8-hour = 250 ppm  PROPYLENEGLYCOL MONOMETHYLETHER TWA = 100 ppm STEL = 150 ppm  ACTIVATOR
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General protective measures

TWA = 1 ppm (2.5 mg/m<sup>3</sup>)  
STEL = 3 ppm (7.6 mg/m<sup>3</sup>)  
Skin penetration possible.  
Ensure sufficient air exchange and/or exhaust in work areas  
Check and control working atmosphere frequently.

## 8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

## Individual protection measures

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.  
Low concentrations or short activity: Self contained Breathing Apparatus  
High concentrations or prolonged activity: Self contained Breathing Apparatus

Hand protection

Gloves nitrile rubber; Glove thickness: 0,75 mm

Eye protection

Safety glasses

Skin and body protection

At the workplace:  
Combination with delayed penetration  
Intervention at incident:  
anti-acid suit

## Hygiene measures

Ensure ventilation of work areas and extraction of dust or vapours

When using do not eat, drink or smoke.

Change contaminated clothing. Wash hands after working with substance.

## Environmental exposure controls

Do not empty into drains.

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## 9. Physical and chemical properties

Physical state:	liquid
Color:	colorless
Odor:	fruity
pH value	Not available
Melting point	0 °C
Boiling point (1013hPa)	>175 °C
Flash point	62,5 °C c.c.
Explosion limit	lower 1.8 Vol%
	upper 63.0 Vol%
Density (20 °C)	1.04 g/cm <sup>3</sup>
Water solubility (20 °C)	>200 g/l
Thermal decomposition	> 190 °C

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## 10. Stability and reactivity

### 10.1 Reactivity

Forms explosive mixtures with air on heating. Unstable at elevated temperatures.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Halogenated organic and mineral acids (Sulphur, phosphorus)

Methyl bromide



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Sodium hydride  
Zinc, Steel (in the presence of water)  
Strong acids : Perchloric acid, periodic acid  
Strong bases  
Strong oxidizing agents

## 10.4 Conditions to avoid

Moisture, contact with air, CO<sub>2</sub> and steam was readily absorbed by activator  
Keep away from heat and sources of ignition.  
To avoid thermal decomposition, do not overheat.

## 10.5 Incompatible materials

various plastics

## 10.6 Hazardous decomposition products

Thermal decomposition giving flammable and toxic products  
Sulphur oxides  
Formaldehyde  
Methylmercaptan  
Thermal decomposition giving flammable and harmful products  
Dimethylsulphide  
Carbon monoxide, carbon dioxide

## 10.7 Further information

The product is stable at ambient temperature  
Hygroscopic product  
Stability of the solution decreases under the action of heat, light, and in the presence of impurities

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## 11. Toxicological information

### Acute toxicity

LD<sub>50</sub> (dermal, rabbit): >2000 mg/kg (IUCLID)

LD<sub>50</sub> (oral, rats): 4500 mg/kg (RTECS).

Sub acutely to chronically venom

Sensitivity:

Sensibility test (guinea pig): negative. (IUCLID)

No signs of carcinogenic. (IUCLID)

No signs of mutagenicity. (IUCLID)

Bacterial mutagenicity: Ames test: negative. (IUCLID)

When testing animals there was no teratogenic effect. (IUCLID)

Mutagenicity (test with mammals cells): Chromosome aberration-negative. (National toxicological program)

### Further toxicological information

Skin-contact: Slightly irritating. Significant cutaneous penetration. Can aid transcutaneous passage of other substances

Eye-contact: Slightly irritating.

Possible symptoms: After ingestion: CNS disorders, dizziness, tiredness, headache.

Possible damages: Damages of livers, kidneys.

### Further information

The product needs to be taken care carefully, like any other chemicals.

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## 12. Ecotoxicological information

SUBSTANCE CONCERNED	DIMÉTHYL SULFOXYDE
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MOBILITY	In soils and sediments: Non adsorbable , log Koc: 0,64 Henry constant: 868E-09 Pa.m <sup>3</sup> /mol
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Non volatile  
Water: 48,1 %  
Air: 0,59 %  
Soil: 51,3 %  
sediment: 0,09 %  
Predicted distribution to environmental compartments

## PERSISTENCE/DEGRADABILITY

In water

Rapid hydrolysis  
Degradation by radicals OH  
Half-life: Half-life: from 0,12 - 1,2 h (at 30 °C)  
Not readily biodegradable.: 31 % after 28 d (OECD Guideline 301 D)  
Biodegradable in water treatment plant: 90,4 % after 32 d (OECD Guideline 303 A)

In air

Degradation by radicals OH :  
Overall half-life time: 2,5 h (estimation)

## BIOACCUMULATION

Not bioaccumulable. log Kow : -1,35

## AQUATIC TOXICITY

Acute toxicity fish

Slightly harmful to fish  
IC50, 96 h (Brachydanio rerio (zebra fish)) : > 25.000 mg/l (OECD Guideline 203)

Aquatic invertebrates

Slightly harmful to daphnia  
EC(1)50, 48 h (Daphnia magna (Water flea)) : 24,600 mg/l (OECD Test Guideline 202)

Aquatic plants

Slightly harmful to algae  
EC50, 72 h (Pseudokirchneriella subcapitata (green algae)) : 17.000 mg/l (OECD Test Guideline 201)

Microorganisms

EC10, 16 h (Pseudomonas putida) : 7.100 mg/l

Long term toxicity

-

Aquatic plants

LC50, 14 d (Algae): 3900 - 40200 mg/l

Behaviour in waste water treatment plants    Respiration inhibition of activated sludge: EC50 : 10 - 100 mg/l (Standard : ISO 8192)

## SUBSTANCE CONCERNED

PENTANEDIOIC ACID, 2-METHYL-1,5-DIMETHYL ESTER

## MOBILITY

Ultimate destination of the product : Water  
Structure-activity relationship (SAR)  
Ultimate destination of the product : Soil  
Structure-activity relationship (SAR)

## PERSISTENCE/DEGRADABILITY

Readily biodegradable  
Ultimate aerobic biodegradability 97 % - 28 d Method: OECD Test Guideline 301  
Unpublished internal reports  
Not potentially bioaccumulable (Unpublished reports)

## BIOACCUMULATION

## AQUATIC TOXICITY

Acute toxicity fish

LC50 - 96 h : 18 - 24 mg/l - Pimephales promelas (fathead minnow)  
Unpublished reports

Aquatic invertebrates

EC50 - 48 h : 112 - 150 mg/l - Daphnia magna (Water flea) Unpublished reports

Aquatic plants

ErC50 - 72 h : > 85 mg/l - Pseudokirchneriella subcapitata (green algae)  
Unpublished internal reports

Ecotoxicity

Harmful to aquatic organisms.

## OTHER ADVERSE EFFECTS

Environment assessment : Not classified as Dangerous for the Environment, according to REGULATION (EC) No 1272/2008

## SUBSTANCE CONCERNED

PROPYLENEGLYCOL MONOMETHYLETHER

## MOBILITY:

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3).  
Potential for mobility in soil is very high (Koc between 0 and 50).

## PERSISTENCE/DEGRADABILITY

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.



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Biodegradation 96 % after 28 d (OECD 301E)

## INDIRECT PHOTODEGRADATION WITH OH RADICALS

Rate Constant 1.65E-11 cm<sup>3</sup>/s

Atmospheric Half-life 7.8 h

Method Estimated.

## AQUATIC TOXICITY

Acute toxicity fish

LC50, fathead minnow (*Pimephales promelas*), static, 96 h: 20,800 mg/l

Aquatic invertebrates

LC50, water flea *Daphnia magna*, static, 48 h, lethality: 23,300 mg/l

Aquatic plants

EbC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), static, biomass growth inhibition, 7 d: > 1,000 mg/l

Microorganisms

IC50; activated sludge: > 1,000 mg/l

Ecotoxicity

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 /EL50/LL50 >100 mg/L in the most sensitive species tested).

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## 13. Disposal considerations

Disposal of product:

Should not be released into the environment

Destroy the product at an approved waste disposal site. In accordance with local and national regulations.

Disposal of packaging:

In accordance with local and national regulations. When packaging is contaminated dispose it like product itself.

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## 14. Transport information

ADR Not regulated

ADNR Not regulated

RID Not regulated

IATA Not regulated

IMDG Not regulated

Not classified as dangerous in the meaning of transport regulations.

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## 15. Regulatory information

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

EU regulations

Major Accident Hazard Legislation 96/82/EC

Directive 96/82/EC does not apply

### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

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## 16. Other information

R-phrases: --

GHS-hazard statements: H226 Flammable liquid and vapour, H332 Harmful if inhaled.; H302 Harmful if swallowed.  
;H312 Harmful in contact with skin. ; H314 Causes severe skin burns and eye damage.

Reason for the change

General update.

This information applies to the product as such, but it does not guarantee the characteristics of the product and it cannot be a basis for any contractual relationship.

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