In accordance with regulation (EC) no. 1907/2006 (REACH)

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

Identification of the substance:
Product name: REVOSOLV F2-AT
Identification number: C2 526

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

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.

3. Composition / information on ingredients

Chemical nature of the preparation:

Name	EC Nr.	GHS hazard statements	Concentration
Dimethyl sulfoxide	200-664-3	/	> 20%
Pentanedioic acid, 2-methyl-, 1,5-dimethyl ester	906-170-0	/	< 60%
Propylene glycol monomethylether	107-98-2	H226	< 35 %
Activator		H332,H302, H312, H314	< 1 %

Classification: In accordance with directive 1272/2010/EC
/
Classification: In accordance with directive 67/548/EEC
/
For the full text of the H-Statements mentioned in this Section, see Section 16

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.

5. Fire-fighting measures

5.1 Extinguishing media
Suitable extinguishing media: Foam
Dry chemical
Carbon dioxide (CO2)
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.

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).

6.3 Methods and materials for containment and cleaning up

	Recover the product
	Sweep up to prevent slipping hazard.
Recovery	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.
	After cleaning, flush away traces with water.
	Dilute with water.
	Recover waste water for processing later.
Elimination	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.

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
	Prevent accidental discharge of product into drains and waterways
Incompatible products	Halogenated organic and mineral acids (sulphur, phosphorus)
	Methyl bromide, Sodium hydride, Zinc, Steel (in the presence of water), Copper, aluminium 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.

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

	TWA = 1 ppm (2.5 mg/m3) STEL = 3 ppm (7.6 mg/m3) Skin penetration possible.
General protective measures	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.

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/cm3
Water solubility	(20 ˚C)	>200	g/l
Thermal decomposition		> 190 ˚C	

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

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, CO2 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

11. Toxicological information

Acute toxicity
LD_{50} (dermal, rabit): >2000 mg/kg (IUCLID)
LD_{50} (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 informations
The product needs to be taken care carefully, like any other chemicals.

12. Ecotoxicological information

SUBSTANCE CONCERNED	DIMÉTHYL SULFOXYDE
MOBILITY	In soils and sediments: Non adsorbable , log Koc: 0,64 Henry constant: 868E-09 Pa.m3/mol

	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(I)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
BIOACCUMULATION	Not potentially bioaccumulable (Unpublished reports)
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.

	Biodegradation 96 % after 28 d (OECD 301E)
INDIRECT PHOTODEGRADATION WITH OH RADICALS	
	Rate Constant 1.65E-11 cm3/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).

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.

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.

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.

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.