

SOLVENT EMAC

According to EC Directive 91/155/EEC

1. Identification

Product: Solvent EMAC

Product Name(s): Solvent EMAC

CAS No. 616-38-6, **EC No.** 210-478-4

Identified uses: DMC is a perfect methylating agent, carbonylating agent, methoxylating agent and methyloaring agent with active chemical properties. It can be used into produce polypropylene carbonate. In pharmaceutical and pesticide, It can be used into produce ciprofloxacin and carbadox. Also it is an indispensable raw material to produce lithium battery electrolyte. It is acting as a good solvent for coating, paints, ink and adhesive.

Manufacturer/Supplier Identification

Manufacturer/Supplier: Formula Chemicals Inc.

Emergency telephone number: +886-922582639; +886-2-26685339

2. Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Flammable liquids (Category 2), H225.

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

Labelling according Regulation (EC) No 1272/2008 [CLP]

Pictogram

Signal word

Danger



Hazard statement(s)

H225 Highly flammable liquid and vapour.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces.-No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P243 Take precautionary measures against static discharge.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303 + P361 + P353 If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P370 + P378 In case of fire: Use dry chemical powder, water spray or fog for extinction.

P403 + P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Not available.

3. Composition / Information on Ingredients

Synonyms	: EMAC (DMC) 4-Methyl-1,3-dioxolan-2-one
Formula	: C ₃ H ₆ O ₃
Molecular Weight	: 98,08 g/mol

Component		Concentration
Dimethyl carbonate		
CAS-No.	616-38-6	-
EC-No.	210-478-4	

4. Emergency and First Aid Procedure**GENERAL INFORMATION**

Consult a physician. Show this safety data sheet to the doctor in attendance.

Skin Contact

Wash off with soap and plenty of water. Consult a physician

Eye Contact

Flush eyes with water as a precaution.

Inhalation

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician

Ingestion

Adverse health effects due to ingestion are not anticipated.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

no data available

5. Firefighting Measures**Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Carbon oxides

Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. Accidental Release Measures**Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

For personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing

and place in container for disposal according to local regulations (see section 13).

Reference to other sections

For disposal see section 13.

7. Handling and Storage**Precautions for safe handling**

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Air sensitive.

Storage class (TRGS 510): Flammable liquids

Specific end uses

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

8. Exposure/ Protection method**Control parameters****Components with workplace control parameters****Exposure controls****Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,3 mm Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0,3 mm Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Body Protection

Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full -face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains

9. Physical and Chemical Data

General Information	
Appearance	Form: liquid, clear Colour: colourless
Odour	: no data available
Odour Threshold	: no data available
pH	: no data available
Melting point/freezing point	: Melting point/range: 2 - 4 °C - lit.
Initial boiling point and	: 90 °C - lit.
Flash point rate	: 18 °C - closed cup h)
Evaporation	: no data available
Flammability (solid, gas)	: no data available
Upper/lower flammability or explosive limits	: Upper explosion limit: 12,87 %(V) : Lower explosion limit: 4,22 %(V)
Vapour pressure	: 53 hPa at 20 °C
Vapour density	: 3.11 - (Air = 1.0)
Relative density	: 1.069 g/mL at 25 °C
Water solubility	: 114,7 g/l at 20 °C - OECD Test Guideline 105 –
Partition coefficient: n-	: log Pow: 0.354 at 20°C
Autoignition temperature	: no data available
Decomposition temperature	: no data available
Viscosity	: no data available
Explosive properties	: no data available
Oxidizing properties	: no data available

10. Stability and Reactivity**Reactivity**

no data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

Heat, flames and sparks

Incompatible materials

Oxidizing agents, Strong acids, Strong bases

Hazardous decomposition products

Other decomposition products - no data available In the event of fire: see section 5.

11. Toxicological Data:**ACUTE TOXICITY:**

LD50 Oral - Rat - male and female - > 5.000 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5,36 mg/l (OECD Test Guideline 403)

LD50 Dermal - Rabbit - male and female - > 2.000 mg/kg

Skin corrosion/irritation

Skin - rabbit

Result: No skin irritation (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes – rabbit

Result: No eye irritation

Respiratory or skin sensitization

Freund's complete adjuvant test - Guinea pig Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity

Chromosome aberration test in vitro lymphocyte

Result: negative

Carcinogenicity

No data available

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Reproductive toxicity - Rat - male and female

Specific target organ toxicity - single exposure

No toxicity to reproduction

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: FG0450000

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

12. Ecological Information**Toxicity**

Toxicity to fish flow-through test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia and static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h
other aquatic (OECD Test Guideline 202)
invertebrates

Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata
(green algae) - > 100 mg/l - 72 h
(OECD Test Guideline 201)

Persistence and degradability

Biodegradability aerobic - Exposure time 28 d
Result: 88 % - Readily biodegradable (OECD Test Guideline 301C)

Bioaccumulative potential

no data available

Mobility in soil

no data available

Results of PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. Disposal Considerations**Waste treatment methods****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. Transport Data

UN number

ADR/RID: 1161 IMDG: 1161 IATA: 1161

UN proper shipping name

ADR/RID: DIMETHYL CARBONATE

IMDG: DIMETHYL CARBONATE

IATA: Dimethyl carbonate

Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

Packaging group

ADR/RID: II IMDG: II IATA: II

Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

Special precautions for user

no data available

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

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

no data available

Chemical Safety Assessment

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

16. Other Information

This data sheet was prepared in accordance with Directive 91/155/EEC. MSDS Prepared by: Formula Chemicals Documentation Department. MSDS Version / Prepared or Revised on: Version 1.0 2019/10/30

The information presented has been compiled from sources considered to be dependable and is accurate to the best of Formula Chemicals' knowledge; however, Formula Chemicals makes no warranty regarding the accuracy of such data or the results to be obtained from use.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.