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DAXSOL Dimethyl carbonate

DAXSOL Dimethyl carbonate is an environmentally friendly VOC-free carbonate with low toxicity and rapid biodegradability recommended for replacing non-sustainable polar solvents, such as ketones, esters and glycols, offering the following benefits:

- Colorless
- Fast-evaporating solvent
- Miscible with most of organic solvents
- Partially soluble in water (up to 13 %)
- Water-like behavior (mp = 4 °C, bp = 90 °C)

UBE is a global company that supplies organic solvents, commercially available in Europe. Through UBE Corporation Europe headquartered in Spain, UBE provides high value-added and superior quality products outperforming the market, and offers tailored and technical support for sustainable global developments.

Benefits of DAXSOL Dimethyl carbonate

DAXSOL Dimethyl carbonate is a green solvent that can directly replacing polar non-sustainable solvents, such as toluene, xylene, methyl ethyl ketone and *n*-butyl acetate, providing the following benefits:

- Mild and non-offensive odor
- Low toxicity
- Biodegradable
- Low MIR
- Non-mutagenic
- Non-HAPS
- VOC Exempt solvent in US
- Recommended by CHEM-21

Properties of DAXSOL Dimethyl carbonate for replacing non-sustainable polar solvents

Polarity

DAXSOL Dimethyl carbonate is suitable for direct substitution of ketones, esters and glycol ethers solvents since their similar polarity nature moderate H-bonding strength, with the following characteristic Hansen Solubility parameters are:

- Dispersion: 15.5
- Polarity: 3.9
- Hydrogen bonding: 9.7
- Molar volume: 84.2

Evaporation Rate

The evaporation rate (3.2) is relatively fast compared to *n*-butyl acetate (evaporation rate = 1). However, it is much slower over solvents such as toluene (evaporation rate = 8.9) and acetone (evaporation rate = 9.8).

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DAXSOL Dimethyl carbonate shows a similar evaporation rate to methyl ethyl ketone and isopropyl acetate.

Safety and Toxicity

DAXSOL Dimethyl carbonate is a VOC-free carbonate with low toxicity and rapid biodegradability, being negative in mutagenic tests (in vitro Ames & comet assay) and presenting very low MIR values. Additionally, it shows a low oral toxicity with a LD50 (rat) > 5000 mg/Kg and low dermal toxicity LD50 (rabbit) > 2000 mg/Kg.

DAXSOL Dimethyl carbonate is also environmentally friendly, with low bioaccumulation and rapidly biodegradable, not expecting to be toxic to fish or bacteria.

The flash point of **DAXSOL Dimethyl carbonate** of 18 °C makes this solvent safer to handle over non-sustainable polar, such as acetone, methyl ethyl ketone and toluene.

From properties above, **DAXSOL Dimethyl carbonate** is recommended by the CHEM21.

Properties of DAXSOL Dimethyl carbonate compared to non-sustainable polar solvents

Property	DAXSOL Dimethyl carbonate	Toluene	Xylene	Acetone	Methyl ethyl ketone	*n*-Butyl acetate	Isopropyl acetate
Hildebrand Solubility Paramater	20.3	18.2	18.0	20.5	19.0	18.6	17.0
Relative Evaporation rate	3.2	8.9	8.7	9.8	3.9	1	3
Boiling Point (°C)	90	111	139	56	80	126	89
Flash Point (°C)	18	4	29	-17	-3	22	16
Density @ 20 °C (g/cm^3)	1.069	0.865	0.86	0.791	0.805	0.882	0.872
MIR Value	0.06	3.97	7.37	0.43	1.49	0.89	1.12
VOC by EPA	NO	YES	YES	NO	YES	YES	YES
HAPS	NO	YES	YES	NO	NO	NO	NO
Recommended by CHEM21	YES	NO	NO	YES	YES	YES	YES

Standard packaging of DAXSOL Dimethyl carbonate

200 kg drums and 25 t bulk containers

Available commercial samples in 1 kg and 12 kg cans.

Health & environmental data

Please refer to the corresponding **DAXSOL Dimethyl carbonate** MSDS.