

DIMETHYL CARBONATE
(CAS #616-38-6)
GREENSCREEN® FOR SAFER CHEMICALS (GREENSCREEN®) ASSESSMENT
(VERSION 1.4)

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Assessment Date: May 28, 2019

Expiration Date: May 28, 2024

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GreenScreen® Executive Summary for Dimethyl Carbonate (CAS #616-38-6)

Dimethyl carbonate is a flammable, colorless liquid that functions as a solvent, blowing agent for polyurethane foams, and chemical intermediate. It is classified as a carbonate ester that is both nonpolar and aprotic, and is finding use as a potential substitute to ketones such as methyl ethyl ketone.

Dimethyl carbonate was assigned a **GreenScreen Benchmark™ Score of 2** (“Use but Search for Safer Substitutes”). This score is based on the following hazard score combinations:

- Benchmark 2e (“Moderate T (Group I Human)”)
 - Moderate Group I Human Health Hazard (developmental toxicity (D))
- Benchmark 2g (“High Flammability or High Reactivity”)
 - High Flammability (F)

Data gaps (DG) exist for endocrine activity (E) and repeated dose neurotoxicity (Nr*). As outlined in GreenScreen® Guidance Section 11.6.2.1 and Annex 5 (Conduct a Data Gap Analysis), dimethyl carbonate meets requirements for a GreenScreen® Benchmark Score of 2 despite the hazard data gaps. In a worst-case scenario, if dimethyl carbonate were assigned a High score for the data gap E, it would be categorized as a Benchmark 1 Chemical.

GreenScreen® Benchmark Score for Relevant Route of Exposure:

As a standard approach for GreenScreen® evaluations, all exposure routes (oral, dermal, and inhalation) were evaluated together, so the GreenScreen® Benchmark Score of 2 (“Use but Search for Safer Substitutes”) is applicable for all routes of exposure.

Figure 1: GreenScreen® Hazard Summary Table for Dimethyl Carbonate

Group I Human					Group II and II* Human								Ecotox		Fate		Physical		
C	M	R	D	E	AT	ST		N		SnS*	SnR*	IrS	IrE	AA	CA	P	B	Rx	F
						single	repeat*	single	repeat*										
<i>L</i>	<i>L</i>	<i>L</i>	<i>M</i>	DG	L	L	L	M	DG	L	<i>L</i>	L	<i>M</i>	L	<i>L</i>	vL	vL	<i>L</i>	H

Note: Hazard levels (Very High (vH), High (H), Moderate (M), Low (L), Very Low (vL)) in *italics* reflect lower confidence in the hazard classification while hazard levels in **BOLD** font reflect higher confidence in the hazard classification. Group II Human Health endpoints differ from Group II* Human Health endpoints in that they have four hazard scores (i.e., vH, H, M, and L) instead of three (i.e., H, M, and L), and are based on single exposures instead of repeated exposures. Group II* Human Health endpoints are indicated by an * after the name of the hazard endpoint or after “repeat” for repeated exposure sub-endpoints. Please see Appendix A for a glossary of hazard acronyms.