

1,3-DIOXOLANE

(CAS #646-06-0)

GREENSCREEN® FOR SAFER CHEMICALS (GREENSCREEN®) ASSESSMENT

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GreenScreen® Executive Summary for 1,3-Dioxolane (CAS #646-06-0)

1,3-Dioxolane is a chemical that functions as a co-monomer in polymer synthesis, a solvent, stabilizer for halogenated organic solvents, and as a starting material in organic synthesis.

1,3-Dioxolane 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 (reproductive toxicity (R) and developmental toxicity (D))
- Benchmark 2g (“High Flammability or High Reactivity”)
 - High Flammability (F)

A data gap (DG) exists for endocrine activity (E). As outlined in GreenScreen® Guidance (CPA 2018b) Section 11.6.2.1 and Annex 5 (Conduct a Data Gap Analysis), 1,3-dioxolane meets requirements for a GreenScreen® Benchmark Score of 2 despite the hazard data gap. In a worst-case scenario, if 1,3-dioxolane 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.

GreenScreen® Hazard Summary Table for 1,3-Dioxolane

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>	L	<i>M</i>	<i>M</i>	DG	<i>L</i>	M	M	M	L	L	<i>L</i>	<i>M</i>	H	L	<i>L</i>	<i>M</i>	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.