

**Substance Name: tris(2-methoxyethoxy)vinylsilane**

**EC Number: 213-934-0**

**CAS Number: 1067-53-4**

**SUPPORT DOCUMENT FOR IDENTIFICATION OF**

**TRIS(2-METHOXYETHOXY)VINYLSILANE**

**AS A SUBSTANCE OF VERY HIGH CONCERN BECAUSE  
OF ITS TOXIC FOR REPRODUCTION (ARTICLE 57c)  
PROPERTIES**

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## ABBREVIATIONS

ATP:	Adaptation to Technical Progress
ATE:	Acute Toxicity Estimate
CA:	Competent Authority
CCH:	Compliance Check
CSR:	Chemical Safety Report
C&L:	Classification & Labelling
CLH:	Harmonised Classification and Labelling
CLP:	Classification, Labelling and Packaging Regulation (EC) No 1272/2008
EC:	European Commission
EOGRTS:	Extended One Generation Reproductive Toxicity Study
MSC:	Member State Committee
MSCA:	Member State Competent Authority
OECD:	Organisation for Economic Co-operation and Development
PC:	Product Category
PNDT:	Prenatal Developmental Toxicity Test
PROC:	Process Category
RAC:	Risk Assessment Committee
RMOA:	Regulatory Management Option Analysis
SU:	Sector of Use
SVHC:	Substance of Very High Concern
tpa:	tons per annum
TPE:	Testing Proposal Examination

## **IDENTIFICATION OF A SUBSTANCE OF VERY HIGH CONCERN ON THE BASIS OF THE CRITERIA SET OUT IN REACH ARTICLE 57**

**Substance name:** Tris(2-methoxyethoxy)vinylsilane

**EC number:** 213-934-0

**CAS number:** 1067-53-4

- The substance is identified as a substance meeting the criteria of Article 57 (c) of Regulation (EC) No 1907/2006 (REACH) owing to its classification in the hazard class toxic for reproduction category 1B, H360FD (May damage fertility. May damage the unborn child).

### **Summary of how the substance meets the criteria set out in Article 57 of the REACH Regulation**

Tris(2-methoxyethoxy)vinylsilane is covered by index number 014-050-00-6 of Regulation (EC) No 1272/2008 in Annex VI, part 3, Table 3 (the list of harmonised classification and labelling of hazardous substances) and it is classified in the hazard class toxic for reproduction category 1B (H360FD: "May damage fertility. May damage the unborn child") (EU, 2020).

Therefore, this classification of the substance in Regulation (EC) No 1272/2008 shows that it meets the criteria for classification in the hazard class:

- Toxic for reproduction category 1B in accordance with Article 57 (c) of REACH.

**Registration dossiers submitted for the substance:** Yes

## Justification

### 1. Identity of the substance and physical and chemical properties

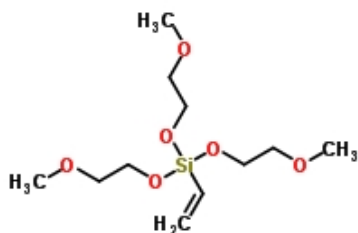
#### 1.1 Name and other identifiers of the substance

**Table 1: Substance identity**

<b>EC number:</b>	213-934-0
<b>EC name:</b>	tris(2-methoxyethoxy)vinylsilane
<b>CAS number (in the EC inventory):</b>	1067-53-4
<b>CAS number:</b>	1067-53-4
<b>IUPAC name:</b>	6-(2-methoxyethoxy)-6-vinyl-2,5,7,10-tetraoxa-6-silaundecane
<b>Index number in Annex VI of the CLP Regulation</b>	014-050-00-6
<b>Molecular formula:</b>	C <sub>11</sub> H <sub>24</sub> O <sub>6</sub> Si
<b>Molecular weight:</b>	280.39 g/mol
<b>Synonyms:</b>	6-(2-methoxyethoxy)-6-vinyl-2,5,7,10-tetraoxa-6-silaundecane 2,5,7,10-tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)-6-ethenyl-6-(2-methoxyethoxy)-2,5,7,10-Tetraoxa-6-silaundecane vinyltris(2-methoxyethoxy)silane ethenyl-tris(2-methoxyethoxy)silane

**Structural formula:**

(Source: European Chemicals Agency, <http://echa.europa.eu/>)

**1.2 Composition of the substance**

**Name:** tris(2-methoxyethoxy)vinylsilane

**Description:** liquid

**Substance type:** mono-constituent

This substance potentially includes an impurity, which has SVHC properties. For further information, see confidential Annex I.

**1.3 Identity and composition of degradation products/metabolites relevant for the SVHC assessment**

**Table 2: Degradation (transformation) product/metabolite**

<b>EC number:</b>	203-713-7
<b>EC name:</b>	2-methoxyethanol
<b>SMILES:</b>	COCCO
<b>CAS number (in the EC inventory):</b>	109-86-4
<b>CAS number:</b>	109-86-4
<b>IUPAC name:</b>	2-methoxyethanol
<b>Index number in Annex VI of the CLP Regulation</b>	603-011-00-4
<b>Molecular formula:</b>	C3H8O2
<b>Molecular weight range:</b>	76.09 g/mol
<b>Synonyms:</b>	EGME Ethylene glycol methyl ether MGE Methyl glycol ether Ethylene glycol methyl ether

**Structural formula:**

(Source: European Chemicals Agency, <http://echa.europa.eu/>)

**Indication of the process, organism and/or organ in which the transformation takes place:**

Tris(2-methoxyethoxy)vinylsilane is a volatile liquid which hydrolyses rapidly when in contact with water or air moisture due to its reactive nature (half-life: 1h at pH 7, 1.6 min at pH 4 and 0.9 min at pH 9 and 25°C)<sup>1</sup>. When hydrolysing, three moles of 2-methoxyethanol (EC 203-713-7, CAS 109-86-4) and one mole of vinyltrisilanol (CAS 143-48-6) are produced (OECD, 2006). In many uses, tris(2-methoxyethoxy) vinylsilane may therefore hydrolyse and release 2-methoxyethanol (ECHA, 2016).

2-methoxyethanol has a harmonised classification as toxic for reproduction (Repr. 1B, H360FD) in CLP and is included in the Candidate List as an SVHC (MSC, 2010).

**1.4 Identity and composition of structurally related substances (used in a grouping or read-across approach)**

Not relevant for the identification of the substance as SVHC in accordance with Article 57 (c) of the REACH Regulation.

**1.5 Physicochemical properties**

Not relevant for the identification of the substance(s) as SVHC in accordance with Article 57 (c) of the REACH Regulation.

<sup>1</sup> ECHA dissemination site [Registration Dossier - ECHA \(europa.eu\)](https://echa.europa.eu/) [accessed 08/2021]

## 2. Harmonised classification and labelling

Tris(2-methoxyethoxy)vinylsilane is covered by Index number 014-050-00-6 in part 3 of Annex VI to the CLP Regulation as follows:

**Table 3: Classification according to Annex VI, Table 3 (list of harmonised classification and labelling of hazardous substances) of Regulation (EC) No 1272/2008 (EU, 2020)**

Index No	Chemical name	EC No	CAS No	Classification		Labelling			Spec. Conc. Limits, M-factors and ATEs	Notes
				Hazard Class and Category Code(s)	Hazard statement code(s)	Pictogram, Signal Word Code(s)	Hazard statement code(s)	Suppl. Hazard statement code(s)		
014-050-00-6	tris(2-methoxyethoxy)vinylsilane;  6-(2-methoxyethoxy)-6-vinyl-2,5,7,10-tetraoxa-6-silaundecane	213-934-0	1067-53-4	Repr. 1B	H360FD	GHS08 Dgr	H360FD			

In the RAC opinion (RAC, 2018) it is noted that the “*classification is further supported by the fact that 2-methoxyethanol, a product of tris(2-methoxyethoxy)vinylsilane hydrolysis, and a presumed metabolite of tris(2-methoxyethoxy)vinylsilane in mammals is a known reproductive toxicant with harmonised classification as Repr. 1B; H360FD.*”

## 3. Environmental fate properties

Not relevant for the identification of the substance as SVHC in accordance with Article 57 (c) of the REACH Regulation.

## 4. Human health hazard assessment

The RAC opinion on the proposed harmonised classification and labelling as Repr. 1B (H360FD) was adopted on 8 June 2018 by consensus. The substance was added to Table 3, Annex VI of CLP via Commission Delegated Regulation (EU) 2020/1182 of 19 May 2020 (EU, 2020).

## 5. Environmental hazard assessment

Not relevant for the identification of the substance as SVHC in accordance with Article 57 (c) of the REACH Regulation.



## 6. Conclusions on the SVHC Properties

### 6.1 CMR assessment

Tris(2-methoxyethoxy)vinylsilane is covered by index number 014-050-00-6 of Regulation (EC) No 1272/2008 in Annex VI, part 3, Table 3 (the list of harmonised classification and labelling of hazardous substances) and it is classified in the hazard class toxic for reproduction category 1B (H360FD: “May damage fertility. May damage the unborn child”) (EU, 2020).

Therefore, this classification of the substance in Regulation (EC) No 1272/2008 shows that it meets the criteria for classification in the hazard class:

- toxic for reproduction category 1B in accordance with Article 57 (c) of REACH.

## References

- ECHA (2016): RMOA Tris(2-methoxyethoxy)vinylsilane  
<https://echa.europa.eu/documents/10162/f5d36f70-e0f3-95ba-b9b7-69a9582c3839>
- ECHA (2021): ECHA Dissemination site [Tris\(2-methoxyethoxy\)vinylsilane - Substance Information - ECHA \(europa.eu\)](#) (accessed July, 2021).
- EU (2006). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC. Official Journal of the European Union, L396: 1-849.
- EU (2008). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packing of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. Official Journal of the European Union, L353: 1-1355.
- EU (2020). Commission Delegated Regulation (EU) 2020/1182 of 19 May 2020 amending, for the purposes of its adaptation to technical and scientific progress, Part 3 of Annex VI to Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures. Official Journal of the European Union, L 261/2, 11.8.2020.
- MSC (2010): Member State Committee support document for identification of 2-Methoxyethanol as a substance of very high concern because of its CMR properties, ECHA, 25 November 2010. Available at [supdoc 2-methoxyethanol 20101125 \(europa.eu\)](#)
- OECD (2006): SIDS Initial Assessment Report for SIAM 22 for Tris(2-methoxyethoxy)vinylsilane (VTMOEOS, CAS 1067-53-4), OECD, April 2006. <http://webnet.oecd.org/HPV/UI/Search.aspx>
- RAC (2018): Opinion on tris(2- methoxyethoxy)vinylsilane (2018). [\[04.01-ML-014.02\] \(europa.eu\)](#)