

according to the Hazardous Products Regulations

Isoeugenol Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04/04/2023
4.5	09/30/2023	4741404-00012	Date of first issue: 08/13/2019

SECTION 1. IDENTIFICATION

Product name	:	Isoeugenol Formulation
Other means of identification	:	No data available

Manufacturer or supplier's details

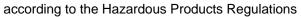
Company name of supplier	:	Merck & Co., Inc
Address	:	126 E. Lincoln Avenue
		Rahway, New Jersey U.S.A. 07065
Telephone	:	908-740-4000
Emergency telephone	:	1-908-423-6000
E-mail address	:	EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use

Recommended use	:	Veterinary product
Restrictions on use	:	Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accord Acute toxicity (Inhalation)	dan :	ce with the Hazardous Products Regulations Category 4
Skin irritation	:	Category 2
Eye irritation	:	Category 2A
Skin sensitization	:	Sub-category 1A
Specific target organ toxicity - single exposure	:	Category 3
GHS label elements		
Hazard pictograms	:	
Signal Word	:	Warning
Hazard Statements	:	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation.
Precautionary Statements	:	Prevention: P261 Avoid breathing vapors. P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area.





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		the workplace.	nated work clothing should not be allowed out of tective gloves, eye protection and face protec-
		P304 + P340 + and keep comfourwell. P305 + P351 + for several mini- to do. Continue P333 + P313 If tion. P337 + P313 If	FON SKIN: Wash with plenty of water. P312 IF INHALED: Remove person to fresh air ortable for breathing. Call a doctor if you feel P338 IF IN EYES: Rinse cautiously with water utes. Remove contact lenses, if present and easy e rinsing. skin irritation or rash occurs: Get medical atten- eye irritation persists: Get medical attention. fake off contaminated clothing and wash it before
		Storage: P405 Store loc	ked up.
		Disposal: P501 Dispose d disposal plant.	of contents and container to an approved waste
••	r hazards known.		

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Isoeugenol	Phenol, 2- methoxy-4-(1- propen-1-yl)-	97-54-1	50

SECTION 4. FIRST AID MEASURES

General advice	:	In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.
If inhaled	:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
In case of skin contact	:	Get medical attention if symptoms occur. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing

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In case of eye contact		Wash clothing Thoroughly cle : In case of con for at least 15 If easy to do, r	 and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention. 				
If swallowed		: If swallowed, I Get medical a	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.				
and	t important symptoms effects, both acute and yed	: Causes skin ir May cause an Causes seriou Harmful if inha	ritation. allergic skin reaction. s eye irritation.				
-	ection of first-aiders es to physician	: First Aid respo and use the re when the pote	ntial for exposure exists (see section 8).				

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion prod- ucts	:	Carbon oxides
Specific extinguishing meth- ods	:	Use extinguishing measures that are appropriate to local cir- cumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- tive equipment and emer- gency procedures	:	Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water.



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Me	ethods and materials for ntainment and cleaning up	Local authorities cannot be contai : Soak up with ine For large spills, p containment to k can be pumped, container. Clean up remain absorbent. Local or national disposal of this n employed in the determine which	should be advised if significant spillages
		certain local or n	ational requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	: If sufficient ventilation is unavailable, use with local exhaust ventilation.
Advice on safe handling	 Do not get on skin or clothing. Do not breathe vapors. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Keep container tightly closed. Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	 Keep in properly labeled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular patienal regulations.
Materials to avoid	 Store in accordance with the particular national regulations. Do not store with the following product types: Strong oxidizing agents Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis
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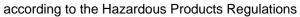
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				(Form of exposure)	ters / Permissible concentration	
Isoeugen	ol		97-54-1	TWA	250 µg/m3 (OEB 2)	Internal
			Further inform	ation: DSEN		
				Wipe limit	100 µg/100 cm ²	Internal
Enginee	ring measures	:	technologies less quick cor All engineerin design and op protect produc	to control airbo nections). g controls shou perated in acco cts, workers, ar	controls and manufac rne concentrations (e. uld be implemented by rdance with GMP prin nd the environment. t require special conta	g., drip- r facility ciples to
Persona	I protective equip	men	t			
	ory protection	:	No personal r required.	espiratory prote	ective equipment norm	nally
Hand pro Mater		:	Chemical-res	stant gloves		
Eye prote		:	If the work en mists or aeros Wear a faces potential for d aerosols.	vironment or ac sols, wear the a hield or other fu irect contact to	e shields or goggles. ctivity involves dusty c appropriate goggles. Ill face protection if the the face with dusts, m	ere is a
	body protection measures	:	If exposure to eye flushing s working place When using d Contaminated workplace. Wash contam The effective engineering c appropriate de industrial hyg	ystems and sa o not eat, drink work clothing inated clothing operation of a f ontrols, proper egowning and o	ely during typical use, fety showers close to a or smoke. should not be allowed before re-use. facility should include a personal protective ed decontamination proce g, medical surveillance	the out of the review of quipment, edures,

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	viscous liquid
Color	:	yellow
Odor	:	floral
Odor Threshold	:	No data available
рН	:	No data available





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	Melting	g point/freezing point	:	No data available	9
	Initial b range	poiling point and boiling	:	266 °C	
	Flash	point	:	No data available)
	Evapo	ration rate	:	No data available)
	Flamm	nability (solid, gas)	:	Not applicable	
	Flamm	nability (liquids)	:	No data available	
		explosion limit / Upper ability limit	:	No data available	
		explosion limit / Lower ability limit	:	No data available	
	Vapor	pressure	:	< 0.02 mmHg (25	5 °C)
	Relativ	ve vapor density	:	No data available	
	Relativ	ve density	:	No data available	
	Densit	у	:	No data available)
		lity(ies) tter solubility	:	dispersible	
	Sol	ubility in other solvents	:	soluble Solvent: Ethanol	
		on coefficient: n- bl/water	:	Not applicable	
		nition temperature	:	No data available)
	Decon	nposition temperature	:	No data available)
	Viscos Vis	ity cosity, kinematic	:	No data available)
	Explos	sive properties	:	Not explosive	
	Oxidiz	ing properties	:	The substance or	r mixture is not classified as oxidizing.
	Molecu	ular weight	:	No data available)
	Particl	e size	:	Not applicable	

SECTION 10. STABILITY AND REACTIVITY

according to the Hazardous Products Regulations

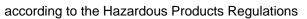


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Reactivity		s a reactivity hazard.				
Chemical stability	: Stable under no					
Possibility of hazardous	reac- : Can react with s	: Can react with strong oxidizing agents.				
tions						
Conditions to avoid	: None known.					
Incompatible materials	: Oxidizing agent	S				
Hazardous decompositic products	00	lecomposition products are known.				

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely route Inhalation Skin contact Ingestion Eye contact	es of	exposure
Acute toxicity Harmful if inhaled.		
Product:		
Acute oral toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: 3 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method
Components:		
Isoeugenol:		
Acute oral toxicity	:	LD50 (Rat): 1,290 mg/kg
Acute inhalation toxicity	:	Acute toxicity estimate: > 1 - 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Expert judgment
Acute dermal toxicity	:	LD50 (Rabbit): 1,912 mg/kg
Skin corrosion/irritation Causes skin irritation.		
Components:		
Isoeugenol:		
Species Result	:	Rabbit Skin irritation





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	us eye damage/eye es serious eye irritatio		
<u>Com</u>	oonents:		
Isoeu	igenol:		
Resu	lt	: Irritation to ey	res, reversing within 21 days
Resp	iratory or skin sens	itization	
-	sensitization cause an allergic skin	reaction.	
-	iratory sensitization lassified based on avai		
Com	oonents:		
Test ⁻	es of exposure es od	: Maximization : Skin contact : Humans : OECD Test G : positive	
Test Route Speci Metho Resul	es of exposure es od	: Maximization : Skin contact : Guinea pig : OECD Test G : positive	
Asses	ssment	: Probability or humans	evidence of high skin sensitization rate in
Not cl <u>Com</u>	a cell mutagenicity lassified based on ava <u>conents:</u> l genol:	ailable information.	
	toxicity in vitro	: Test Type: Ba Result: negat	acterial reverse mutation assay (AMES) ive
		Test Type: Cl Result: negat	nromosome aberration test in vitro ive
Geno	toxicity in vivo	cytogenetic a Species: Mou	se oute: Ingestion

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		ogenicity Issified based on availa	ble	information.	
		ductive toxicity ssified based on availa	ble	information.	
	Comp	onents:			
	Isoeug	jenol:			
	Effects	on fertility	:	Test Type: Two-g Species: Rat Application Route Result: negative	eneration reproduction toxicity study : Ingestion
	Effects	on fetal development	:	Test Type: Embry Species: Rat Application Route Result: negative	ro-fetal development : Ingestion
		single exposure ause respiratory irritatio	n.		
	Comp	onents:			
	Isoeug	jenol:			
	Assess Remar		:	May cause respira Based on data fro	atory irritation. m similar materials
		repeated exposure ssified based on availa	ble	information.	
	Repea	ted dose toxicity			
	Comp	onents:			
	Isoeug	jenol:			
	Specie		:	Rat	
	NOAEI LOAEL		:	75 mg/kg 150 mg/kg	
	Applica	ation Route	:	Ingestion	
	Exposi	ure time	:	14 Weeks	
		ition toxicity Issified based on availa	ıble	information.	
SEC	TION 1	2. ECOLOGICAL INFO	ORN	IATION	
	Ecoto	kicity			
	Comp	onents:			

Isoeugenol:

Toxicity to fish

: EC50 (Oncorhynchus mykiss (rainbow trout)): 5.1 mg/l



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			Exposure time: 96	3 h		
	ity to daphnia and other ic invertebrates	:	EC50 (Daphnia m Exposure time: 48	nagna (Water flea)): 7.5 mg/l 3 h		
Toxici plants	ity to algae/aquatic	:	ErC50 (Skeletone Exposure time: 72	ema costatum (marine diatom)): 3.76 mg/l 2 h		
			NOEC (Skeletone Exposure time: 72	ema costatum (marine diatom)): 1.7 mg/l 2 h		
Toxicity to daphnia and other aquatic invertebrates (Chron-ic toxicity)			NOEC (Daphnia magna (Water flea)): 0.4 mg/l Exposure time: 21 d Method: OECD Test Guideline 211			
Persi	stence and degradabili	ity				
<u>Comp</u>	oonents:					
Isoeu	genol:					
Biode	gradability	:	Result: Readily bi Biodegradation: Exposure time: 28 Method: OECD T	79 %		
Bioac	cumulative potential					
<u>Comp</u>	oonents:					
Partiti	i genol: on coefficient: n- ol/water	:	log Pow: 3.04			
	l ity in soil Ita available					
	r adverse effects ata available					

Disposal methods		
Waste from residues	: Do not dispose of waste into sewer. Dispose of in accordance with local regulations.	
Contaminated packaging	 Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product. 	

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG





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N	ot regulated as a dangerou	is good							
	IATA-DGR Not regulated as a dangerous good								
	DG-Code ot regulated as a dangerou	is good							
	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable for product as supplied.								
De	Domestic regulation								
)G ot regulated as a dangerou	is good							
	Special precautions for user Not applicable								
SECTI	ON 15. REGULATORY IN	FORMATION							
	e ingredients of this pro CS	duct are reported in : not determined	the following inventories:						

AICO	•	not determined
DSL	:	not determined
IECSC	:	not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumu-



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lative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen- cy, http://echa.europa.eu/
Revision Date Date format	:	09/30/2023 mm/dd/yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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