SAFETY DATA SHEET

Version 5.13 Revision Date 01/11/2018 Print Date 10/18/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : EPA TCL Volatiles Mix 3

Product Number : 48453 Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich

3050 Spruce Street SAINT LOUIS MO 63103

USA

Telephone : +1 800-325-5832 Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301 Acute toxicity, Inhalation (Category 3), H331 Acute toxicity, Dermal (Category 3), H311 Skin sensitisation (Category 1), H317 Carcinogenicity (Category 1B), H350

Specific target organ toxicity - single exposure (Category 1), H370

Acute aquatic toxicity (Category 2), H401 Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled.

H317 May cause an allergic skin reaction.

H350 May cause cancer.

H370 Causes damage to organs.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and

understood.
anaciotoca.

	diadictora.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse
	mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON
	CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P311	IF INHALED: Remove victim to fresh air and keep at rest in a position
	comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Sensitising components:

(E)-1,3-Dichloropropene

(Z)-1,3-Dichloropropene

May produce an allergic reaction.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Component		Classification	Concentration			
Methanol						
CAS-No. EC-No. Index-No. Registration number	67-56-1 200-659-6 603-001-00-X 01-2119433307-44-XXXX	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	90 - 100 %			
Ethylbenzene						
CAS-No. EC-No. Index-No.	100-41-4 202-849-4 601-023-00-4	Flam. Liq. 2; Acute Tox. 4; Carc. 2; STOT RE 2; Asp. Tox. 1; Aquatic Acute 2; H225, H304, H332, H351, H373, H401	0.1 - 1 %			
(E)-1,3-Dichloropropene						
CAS-No.	10061-02-6	Flam. Liq. 3; Acute Tox. 3; Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H226, H301 + H311, H304, H315, H317, H319, H332, H335, H351, H410	0.1 - 1 %			

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Ethylene dichloride Include according to Regulation (EG		substances of Very High Concern	(SVHC)
CAS-No. EC-No. Index-No.	107-06-2 203-458-1 602-012-00-7 01-2119484658-20-XXXX	Flam. Liq. 2; Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 1B; STOT SE 3; H225, H302, H315, H319, H331, H335, H350	0.1 - 1 %
Tetrachloroethylene			
CAS-No. EC-No. Index-No.	127-18-4 204-825-9 602-028-00-4	Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 2; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 2; H315, H317, H319, H336, H351, H411	0.1 - 1 %
(Z)-1,3-Dichloropropene			
CAS-No. EC-No. Index-No.	10061-01-5 233-195-8 602-030-00-5	Flam. Liq. 3; Acute Tox. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H226, H301, H304, H312 + H332, H315, H317, H319, H335, H410	0.1 - 1 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	(see BEI® se	for which there is a	a Biological Exposure Index or Indices on USA. ACGIH Threshold Limit Values (TLV)
		(see BEI® se	for which there is a	a Biological Exposure Index or Indices

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ITWA	200.000000	USA. NIOSH Recommended
1000	ppm	Exposure Limits
	260.000000	Exposure Elimis
	mg/m3	
Potential fo	or dermal absorptio	nn
ST	250.000000	USA. NIOSH Recommended
	ppm	Exposure Limits
	325.000000	'
	mg/m3	
Potential fo	or dermal absorptio	on
TWA	200.000000	USA. Occupational Exposure Limits
	ppm	(OSHA) - Table Z-1 Limits for Air
	260.000000	Contaminants
	mg/m3	
The value i	in mg/m3 is approx	rimate.
TWA	200 ppm	USA. ACGIH Threshold Limit Values
		(TLV)
Headache		
Nausea		
Dizziness		
Eye damag		
		a Biological Exposure Index or Indices
(see BEI®		
	cutaneous absorpti	
STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
Headache		
Nausea		
Dizziness		
Eye damag	~~	
Substance	s for which there is	a Biological Exposure Index or Indices
Substance (see BEI®	s for which there is section)	
Substance (see BEI® Danger of	s for which there is section) cutaneous absorpti	ion
Substance (see BEI®	s for which there is section) cutaneous absorpti 200 ppm	ion USA. NIOSH Recommended
Substance (see BEI® Danger of o	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3	ion USA. NIOSH Recommended Exposure Limits
Substance (see BEI® Danger of o TWA	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorptio	ion USA. NIOSH Recommended Exposure Limits
Substance (see BEI® Danger of o	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorption 250 ppm	USA. NIOSH Recommended Exposure Limits on USA. NIOSH Recommended
Substance (see BEI® Danger of TWA	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorptio 250 ppm 325 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits
Substance (see BEI® Danger of of TWA Potential for ST Potential for ST	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 325 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits
Substance (see BEI® Danger of TWA	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits
Substance (see BEI® Danger of of TWA Potential for ST Potential for ST	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 325 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorptio 250 ppm 325 mg/m3 or dermal absorptio 200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value in the substance of the	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants cimate.
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA	s for which there is section) cutaneous absorpti 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Cimate. USA. OSHA - TABLE Z-1 Limits for
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants cimate.
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approximation 250 ppm 325 mg/m3 on	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Cimate. USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 mg/m3 on 200 ppm	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Cimate. USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 ppm 325 ppm 325 ppm 325 ppm 325 mg/m3 on 200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Cimate. USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approxed 250 ppm 325 ppm 325 ppm 325 mg/m3 on 200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Contaminants USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 ppm 325 ppm 325 ppm 325 ppm 325 mg/m3 on 200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Contaminants USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approxed 250 ppm 325 ppm 325 ppm 325 mg/m3 on 200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Contaminants USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation C	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approxed 250 ppm 325 ppm 325 ppm 325 mg/m3 on 200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Contaminants USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation C Skin	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 mg/m3 on 200 ppm 260 mg/m3 on 1,000 ppm	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Cimate. USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation C	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 mg/m3 on 200 ppm 260 mg/m3 on 1,000 ppm 200 ppm	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Contaminants USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation C Skin	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 mg/m3 on 200 ppm 260 mg/m3 on 1,000 ppm	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Contaminants USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 California permissible exposure limits for chemical contaminants (Title 8, Article 107) California permissible exposure limits for chemical contaminants
Substance (see BEI® Danger of of TWA Potential for ST Potential for TWA The value if STEL Skin notation TWA Skin notation C Skin	s for which there is section) cutaneous absorption 200 ppm 260 mg/m3 or dermal absorption 250 ppm 325 mg/m3 or dermal absorption 200 ppm 260 mg/m3 in mg/m3 is approx 250 ppm 325 mg/m3 on 200 ppm 260 mg/m3 on 1,000 ppm 200 ppm	USA. NIOSH Recommended Exposure Limits USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Simate. USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 California permissible exposure limits for chemical contaminants (Title 8, Article 107)

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		STEL	250 ppm 325 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin	•	,
Ethylbenzene	100-41-4	TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Resp Substances (see BEI® s	age (nephropathy) iratory Tract irritati for which there is a ection)	
		STEL	125.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Resp Eye irritation Adopted val are propose See Notice Substances (see BEI® s	ues or notations end in the NIC of Intended Chang for which there is a ection)	on nclosed are those for which changes es (NIC) a Biological Exposure Index or Indices
		Confirmed a	nimal carcinogen	with unknown relevance to humans
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	125.000000 ppm 545.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in	mg/m3 is approxi	mate
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Resp Substances (see BEI® s	age (nephropathy) iratory Tract irritati for which there is a ection)	
		TWA	100 ppm 435 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	125 ppm 545 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in	mg/m3 is approxi	mate.

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		TWA	100 ppm 435 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	125 ppm 545 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		PEL	5 ppm 22 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	30 ppm 130 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Ethylene dichloride	107-06-2	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damag Nausea Not classifia	e ble as a human ca	rcinogen
		TWA	1.000000 ppm 4.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
			cupational Carcino	ogen
		See Append See Append		
		ST	2.000000 ppm 8.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Oc See Append See Append	cupational Carcino ix C	ogen
		See Table Z		
		TWA	50.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.21-1969		
		CEIL	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.21-1969		
		Peak	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.21-1969)	
		TWA	50 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.21-1969		
		CEIL	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.21-1969		T
		Peak	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.21-1969		
		PEL	1 ppm 4 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		С	200 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	2 ppm 8 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Tetrachloroethylene	127-18-4	TWA	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	+	1	ous System impai	

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(see BEI®	section)	s a Biological Exposure Index or Indices
Confirmed	d animal carcinogei	n with unknown relevance to humans
STEL	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	ervous System imp	pairment s a Biological Exposure Index or Indices
(see BEI®	section)	
	Occupational Carci	n with unknown relevance to humans
	workplace exposur	
See Appe		
TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
Peak	300.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
Substance (see BEI®	section)	s a Biological Exposure Index or Indices
STEL	100 ppm	n with unknown relevance to humans USA. ACGIH Threshold Limit Values (TLV)
Substance (see BEI®	section)	pairment s a Biological Exposure Index or Indices n with unknown relevance to humans
Potential (Minimize	Occupational Carci workplace exposur	nogen
See Appe See Table		
TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
Peak	300 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
TWA	25 ppm 170 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
STEL	100 ppm 685 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
С	300 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
PEL	25 ppm 170 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Hazardous components without workplace control parameters

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Biological occupational exposure limits

Biological occup Component	CAS-No.	Parameters	Value	Biological	Basis
				specimen	
	1 -	Methanol	15.0000	Urine	ACGIH - Biological
			mg/l		Exposure Indices
			J. 1. 3. 1		(BEI)
	Remarks	End of shift (As	s soon as po	ssible after exposure	e ceases)
		Methanol	15 mg/l	Urine	ACGIH - Biological
					Exposure Indices
					(BEI)
				ssible after exposure	
alkylbenzene		Sum of	0.7g/g	Urine	ACGIH - Biological
		mandelic acid	creatinine		Exposure Indices
		and phenyl			(BEI)
		glyoxylic acid			
		End of shift at	end of works		1 4 0 0 11 1 B: 1 1 1 1
		Ethylbenzene		In end-exhaled air	ACGIH - Biological
					Exposure Indices (BEI)
		Not critical			(DEI)
		Sum of	0.15g/g	Urine	ACGIH - Biological
		mandelic acid	creatinine	Office	Exposure Indices
		and phenyl	or outilino		(BEI)
		glyoxylic acid			()
			s soon as po	ssible after exposure	e ceases)
		Tetrachloroet	3ppm	In end-exhaled air	ACGIH - Biological
		hylene			Exposure Indices
					(BEI)
				r exposure ceases)	
		Tetrachloroet	0.5000	In blood	ACGIH - Biological
		hylene	mg/l		Exposure Indices
		5			(BEI)
				r exposure ceases)	1 4 0 0 11 1 B: 1
		Tetrachloroet	3ppm	In end-exhaled air	ACGIH - Biological
		hylene			Exposure Indices (BEI)
				r exposure ceases)	
		Tetrachloroet	0.5 mg/l	In blood	ACGIH - Biological
		hylene			Exposure Indices (BEI)
		Prior to shift (1	6 hours afte	r exposure ceases)	/

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm Break through time: 480 min

Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

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Splash contact Material: Nitrile rubber

Minimum layer thickness: 0.4 mm Break through time: 30 min

Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method:

EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

i	a)	Appearance	Form: liquid
	b)	Odour	No data available
(c)	Odour Threshold	No data available
(d)	рН	No data available
(e)	Melting point/freezing point	No data available
1	f)	Initial boiling point and boiling range	No data available
9	g)	Flash point	No data available
	h)	Evaporation rate	No data available
İ	i)	Flammability (solid, gas)	No data available
j	j)	Upper/lower flammability or explosive limits	No data available
	k)	Vapour pressure	No data available
	l)	Vapour density	No data available
ı	m)	Relative density	No data available
ı	n)	Water solubility	No data available
(0)	Partition coefficient: n-octanol/water	No data available
	p)	Auto-ignition temperature	No data available
	q)	Decomposition temperature	No data available

Viscosity

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No data available

s) Explosive properties No data availablet) Oxidizing properties No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong bases, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Metals, Acid chlorides, Acid anhydrides, Reducing agents, Halogens, Aluminum

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: 2A - Group 2A: Probably carcinogenic to humans (Tetrachloroethylene)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Ethylbenzene)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Ethylene dichloride)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Ethylene dichloride)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Tetrachloroethylene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's

list of regulated carcinogens.

Reproductive toxicity

No data available

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No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence (p-Xylene)

Stomach - Irregularities - Based on Human Evidence (Ethylbenzene)

Kidney - ((E)-1,3-Dichloropropene)

Pancreas. - (Ethylene dichloride)

Kidney - ((Z)-1,3-Dichloropropene)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1230 Class: 3 Packing group: II

Proper shipping name: Methanol Reportable Quantity (RQ): 5000 lbs Poison Inhalation Hazard: No

IMDG

UN number: 1230 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D

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IATA

UN number: 1230 Class: 3 (6.1) Packing group: II

Proper shipping name: Methanol

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01
Ethylbenzene	100-41-4	2007-07-01
(E)-1,3-Dichloropropene	10061-02-6	2007-07-01
Ethylene dichloride	107-06-2	2007-07-01
Tetrachloroethylene	127-18-4	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

·	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01
(E)-1,3-Dichloropropene	10061-02-6	2007-07-01
Ethylene dichloride	107-06-2	2007-07-01
Tetrachloroethylene	127-18-4	2007-07-01
(Z)-1,3-Dichloropropene	10061-01-5	1993-04-24

Pennsylvania Right To Know Components

·	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01
p-Xylene	106-42-3	2007-07-01
Ethylbenzene	100-41-4	2007-07-01
Ethylene dichloride	107-06-2	2007-07-01
Tetrachloroethylene	127-18-4	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01
Ethylbenzene	100-41-4	2007-07-01
Ethylene dichloride	107-06-2	2007-07-01
Tetrachloroethylene	127-18-4	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No. 100-41-4	Revision Date 2007-09-28
Ethylbenzene		
Ethylene dichloride	107-06-2	2007-09-28
Tetrachloroethylene	127-18-4	2007-09-28

WARNING: This product contains a chemical known to the	CAS-No.	Revision Date
State of California to cause birth defects or other reproductive	67-56-1	2012-03-16
harm.		

Methanol

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

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Acute Tox. Acute toxicity

Aquatic Acute
Aquatic Chronic
Asp. Tox.
Carc.
Eye Irrit.
Flam. Lig.
Acute aquatic toxicity
Chronic aquatic toxicity
Aspiration hazard
Carcinogenicity
Eye irritation
Flammable liquids

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.

H301 Toxic if swallowed.

H301 + H311 Toxic if swallowed or in contact with skin.

H301 + H311 + Toxic if swallowed, in contact with skin or if inhaled.

H331

H302 Harmful if swallowed.

H304 May be fatal if swallowed and enters airways.

H311 Toxic in contact with skin.

H312 + H332 Harmful in contact with skin or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction. H319 Causes serious eye irritation.

H331 Toxic if inhaled. H332 Harmful if inhaled.

H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.

H350 May cause cancer.

H351 Suspected of causing cancer.

H370 Causes damage to organs (/\$/*_ORGAN_SINGLE/\$/).

H373 May cause damage to organs through prolonged or repeated exposure.

H401 Toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.H411 Toxic to aquatic life with long lasting effects.

Skin Irrit. Skin irritation
Skin Sens. Skin sensitisation

STOT RE Specific target organ toxicity - repeated exposure STOT SE Specific target organ toxicity - single exposure

HMIS Rating

Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical Hazard 0

NFPA Rating

Health hazard: 2
Fire Hazard: 0
Reactivity Hazard: 0

Further information

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Preparation Information

Sigma-Aldrich Corporation Product Safety – Americas Region 1-800-521-8956

Version: 5.13 Revision Date: 01/11/2018 Print Date: 10/18/2019

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