

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/31/2018

Reviewed on 05/31/2018

1 Identification

- **Product identifier**
- **Trade name:** VOC-M54C
- **Article number:** VOC-M54C
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 High-Purity Standards
 PO Box 41727 SC 29423 United States
 www.highpuritystandards.com
- **Information department:** *Product safety department*
- **Emergency telephone number:**
 INFOTRAC
 Emergency telephone numbers 1-800-535-5053
 Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.


GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.


GHS08 Health hazard

Muta. 1B H340 May cause genetic defects.
Carc. 1A H350 May cause cancer.
STOT SE 1 H370 Causes damage to organs.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.


GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Label elements**
- **GHS label elements** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

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· Hazard pictograms


GHS02 GHS06 GHS07 GHS08

· Signal word Danger
· Hazard-determining components of labeling:

methanol
1,2-dibromo-3-chloropropane
carbon tetrachloride
1,1,2,2-tetrachloroethane
1,3-dichloropropane
(Z)-1,3-dichloropropene
trans-1,3-Dichloropropene

· Hazard statements

H225 Highly flammable liquid and vapor.
H331 Toxic if inhaled.
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350 May cause cancer.
H370 Causes damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Get medical advice/attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO₂, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

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· Classification system:
· NFPA ratings (scale 0 - 4)

· HMIS-ratings (scale 0 - 4)

· Other hazards
· Results of PBT and vPvB assessment
· PBT:

87-61-6	1,2,3-trichlorobenzene
120-82-1	1,2,4-trichlorobenzene
87-68-3	hexachlorobuta-1,3-diene

· vPvB:

87-68-3	hexachlorobuta-1,3-diene
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3 Composition/information on ingredients

· Chemical characterization: Mixtures
· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

67-56-1	methanol	89.2%
79-34-5	1,1,2,2-tetrachloroethane	0.2%
79-00-5	1,1,2-trichloroethane	0.2%
75-35-4	1,1-dichloroethylene	0.2%
87-61-6	1,2,3-trichlorobenzene	0.2%
96-18-4	1,2,3-trichloropropane	0.2%
120-82-1	1,2,4-trichlorobenzene	0.2%
96-12-8	1,2-dibromo-3-chloropropane	0.2%
106-93-4	1,2-dibromoethane	0.2%
107-06-2	1,2-dichloroethane	0.2%
78-87-5	1,2-dichloropropane	0.2%
142-28-9	1,3-dichloropropane	0.2%
106-46-7	1,4-dichlorobenzene	0.2%
71-43-2	benzene	0.2%
75-27-4	bromodichloromethane	0.2%
56-23-5	carbon tetrachloride	0.2%
67-66-3	trichloromethane	0.2%

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10061-01-5	(Z)-1,3-dichloropropene	0.2%
75-09-2	dichloromethane	0.2%
100-41-4	ethylbenzene	0.2%
87-68-3	hexachlorobuta-1,3-diene	0.2%
98-82-8	cumene	0.2%
91-20-3	naphthalene	0.2%
103-65-1	propylbenzene	0.2%
100-42-5	styrene	0.2%
127-18-4	tetrachloroethylene	0.2%
108-88-3	toluene	0.2%
10061-02-6	trans-1,3-Dichloropropene	0.2%
79-01-6	trichloroethylene	0.2%
630-20-6	1,1,1,2-Tetrachloroethane	0.2%

Chemical identification of the substance/preparation

71-55-6	1,1,1-trichloroethane	0.2%
75-34-3	1,1-dichloroethane	0.2%
563-58-6	1,1-dichloropropene	0.2%
95-63-6	1,2,4-trimethylbenzene	0.2%
95-50-1	1,2-dichlorobenzene	0.2%
108-67-8	mesitylene	0.2%
541-73-1	1,3-dichlorobenzene	0.2%
594-20-7	2,2-dichloropropane	0.2%
95-49-8	2-chlorotoluene	0.2%
106-43-4	4-chlorotoluene	0.2%
108-86-1	bromobenzene	0.2%
74-97-5	bromochloromethane	0.2%
75-25-2	bromoform	0.2%
108-90-7	chlorobenzene	0.2%
156-59-2	cis-dichloroethylene	0.2%
124-48-1	dibromochloromethane	0.2%
74-95-3	dibromomethane	0.2%
108-38-3	m-xylene	0.2%
104-51-8	butylbenzene	0.2%
95-47-6	o-xylene	0.2%
99-87-6	Cymol	0.2%
106-42-3	p-xylene	0.2%
135-98-8	sec-butylbenzene	0.2%
98-06-6	tert-butylbenzene	0.2%
156-60-5	trans-dichloroethylene	0.2%

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4 First-aid measures

- **Description of first aid measures**

- **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation:**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:** If symptoms persist consult doctor.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **For safety reasons unsuitable extinguishing agents:** Water with full jet

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

- **Protective Action Criteria for Chemicals**

- **PAC-I:**

67-56-1	methanol	530 ppm
71-55-6	1,1,1-trichloroethane	230 ppm

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79-34-5	1,1,2,2-tetrachloroethane	3 ppm
79-00-5	1,1,2-trichloroethane	30 ppm
75-34-3	1,1-dichloroethane	300 ppm
75-35-4	1,1-dichloroethylene	45 ppm
563-58-6	1,1-dichloropropene	1.3 ppm
87-61-6	1,2,3-trichlorobenzene	15 mg/m ³
96-18-4	1,2,3-trichloropropane	0.015 ppm
120-82-1	1,2,4-trichlorobenzene	0.45 ppm
95-63-6	1,2,4-trimethylbenzene	140 ppm
96-12-8	1,2-dibromo-3-chloropropane	0.003 ppm
106-93-4	1,2-dibromoethane	17 ppm
95-50-1	1,2-dichlorobenzene	50 ppm
107-06-2	1,2-dichloroethane	50 ppm
78-87-5	1,2-dichloropropane	30 ppm
108-67-8	mesitylene	140 ppm
541-73-1	1,3-dichlorobenzene	6 ppm
142-28-9	1,3-dichloropropane	5.4 ppm
106-46-7	1,4-dichlorobenzene	30 ppm
594-20-7	2,2-dichloropropane	2.6 ppm
95-49-8	2-chlorotoluene	75 ppm
106-43-4	4-chlorotoluene	1.2 ppm
71-43-2	benzene	52 ppm
108-86-1	bromobenzene	0.96 ppm
74-97-5	bromochloromethane	600 ppm
75-27-4	bromodichloromethane	1.3 mg/m ³
75-25-2	bromoform	1.5 ppm
56-23-5	carbon tetrachloride	1.2 ppm
108-90-7	chlorobenzene	10 ppm

· PAC-2:

67-56-1	methanol	2,100 ppm
71-55-6	1,1,1-trichloroethane	600 ppm
79-34-5	1,1,2,2-tetrachloroethane	120 ppm
79-00-5	1,1,2-trichloroethane	180 ppm
75-34-3	1,1-dichloroethane	670 ppm
75-35-4	1,1-dichloroethylene	500 ppm
563-58-6	1,1-dichloropropene	15 ppm
87-61-6	1,2,3-trichlorobenzene	60 mg/m ³
96-18-4	1,2,3-trichloropropane	170 ppm
120-82-1	1,2,4-trichlorobenzene	5 ppm
95-63-6	1,2,4-trimethylbenzene	360 ppm

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96-12-8	1,2-dibromo-3-chloropropane	2.2 ppm
106-93-4	1,2-dibromoethane	24 ppm
95-50-1	1,2-dichlorobenzene	170 ppm
107-06-2	1,2-dichloroethane	200 ppm
78-87-5	1,2-dichloropropane	220 ppm
108-67-8	mesitylene	360 ppm
541-73-1	1,3-dichlorobenzene	66 ppm
142-28-9	1,3-dichloropropane	59 ppm
106-46-7	1,4-dichlorobenzene	170 ppm
594-20-7	2,2-dichloropropane	29 ppm
95-49-8	2-chlorotoluene	310 ppm
106-43-4	4-chlorotoluene	13 ppm
71-43-2	benzene	800 ppm
108-86-1	bromobenzene	11 ppm
74-97-5	bromochloromethane	830 ppm
75-27-4	bromodichloromethane	14 mg/m ³
75-25-2	bromoform	6.8 ppm
56-23-5	carbon tetrachloride	13 ppm
108-90-7	chlorobenzene	150 ppm

PAC-3:

67-56-1	methanol	7200* ppm
71-55-6	1,1,1-trichloroethane	4,200 ppm
79-34-5	1,1,2,2-tetrachloroethane	150 ppm
79-00-5	1,1,2-trichloroethane	500 ppm
75-34-3	1,1-dichloroethane	4,000 ppm
75-35-4	1,1-dichloroethylene	1,000 ppm
563-58-6	1,1-dichloropropene	87 ppm
87-61-6	1,2,3-trichlorobenzene	360 mg/m ³
96-18-4	1,2,3-trichloropropane	1,000 ppm
120-82-1	1,2,4-trichlorobenzene	20 ppm
95-63-6	1,2,4-trimethylbenzene	480 ppm
96-12-8	1,2-dibromo-3-chloropropane	4.3 ppm
106-93-4	1,2-dibromoethane	46 ppm
95-50-1	1,2-dichlorobenzene	1,000 ppm
107-06-2	1,2-dichloroethane	300 ppm
78-87-5	1,2-dichloropropane	2,000 ppm
108-67-8	mesitylene	480 ppm
541-73-1	1,3-dichlorobenzene	400 ppm
142-28-9	1,3-dichloropropane	350 ppm
106-46-7	1,4-dichlorobenzene	1,000 ppm

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594-20-7	2,2-dichloropropane	170 ppm
95-49-8	2-chlorotoluene	1,800 ppm
106-43-4	4-chlorotoluene	80 ppm
71-43-2	benzene	4000* ppm
108-86-1	bromobenzene	240 ppm
74-97-5	bromochloromethane	5,000 ppm
75-27-4	bromodichloromethane	85 mg/m ³
75-25-2	bromoform	41 ppm
56-23-5	carbon tetrachloride	340 ppm
108-90-7	chlorobenzene	400 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

67-56-1 methanol

PEL	Long-term value: 260 mg/m ³ , 200 ppm
REL	Short-term value: 325 mg/m ³ , 250 ppm
	Long-term value: 260 mg/m ³ , 200 ppm
	Skin

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TLV	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI
79-34-5 1,1,2,2-tetrachloroethane	
PEL	Long-term value: 35 mg/m ³ , 5 ppm Skin
REL	Long-term value: 7 mg/m ³ , 1 ppm Skin; See Pocket Guide Apps. A and C
TLV	Long-term value: 6.9 mg/m ³ , 1 ppm Skin
79-00-5 1,1,2-trichloroethane	
PEL	Long-term value: 45 mg/m ³ , 10 ppm Skin
REL	Long-term value: 45 mg/m ³ , 10 ppm Skin; See Pocket Guide Apps. A and C
TLV	Long-term value: 55 mg/m ³ , 10 ppm Skin
75-35-4 1,1-dichloroethylene	
REL	See Pocket Guide App. A
TLV	Long-term value: 20 mg/m ³ , 5 ppm
96-18-4 1,2,3-trichloropropane	
PEL	Long-term value: 300 mg/m ³ , 50 ppm
REL	Long-term value: 60 mg/m ³ , 10 ppm Skin, See Pocket Guide App. A
TLV	Long-term value: 0.03 mg/m ³ , 0.005 ppm
120-82-1 1,2,4-trichlorobenzene	
REL	Ceiling limit value: 40 mg/m ³ , 5 ppm
TLV	Ceiling limit value: 37 mg/m ³ , 5 ppm
96-12-8 1,2-dibromo-3-chloropropane	
PEL	Long-term value: 0.001 ppm see 29 CFR 1910.1044
REL	See Pocket Guide App. A
106-93-4 1,2-dibromoethane	
PEL	Long-term value: 20 ppm Ceiling limit value: 30; 50* ppm *5-min peak per 8-hr shift
REL	Long-term value: 0.045 ppm Ceiling limit value: 0.13* ppm *15-min; See Pocket Guide App. A
TLV	Skin
107-06-2 1,2-dichloroethane	
PEL	Long-term value: 50 ppm Ceiling limit value: 100; 200* ppm *5-min peak in any 3 hrs

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REL Short-term value: 8 mg/m³, 2 ppm
Long-term value: 4 mg/m³, 1 ppm
See Pocket Guide Apps. A and C

TLV Long-term value: 40 mg/m³, 10 ppm

78-87-5 1,2-dichloropropane

PEL Long-term value: 350 mg/m³, 75 ppm

REL See Pocket Guide App. A

TLV Long-term value: 46 mg/m³, 10 ppm
DSEN

106-46-7 1,4-dichlorobenzene

PEL Long-term value: 450 mg/m³, 75 ppm

REL See Pocket Guide App. A

TLV Long-term value: 60 mg/m³, 10 ppm

71-43-2 benzene

PEL Short-term value: 15* mg/m³, 5* ppm
Long-term value: 3* mg/m³, 1* ppm
*table Z-2 for exclusions in 29CFR1910.1028(d)

REL Short-term value: 1 ppm
Long-term value: 0.1 ppm
See Pocket Guide App. A

TLV Short-term value: 8 mg/m³, 2.5 ppm
Long-term value: 1.6 mg/m³, 0.5 ppm
Skin; BEI

56-23-5 carbon tetrachloride

PEL Long-term value: 10 ppm
Ceiling limit value: 25; 200* ppm
*5-min peak in any 4 hrs

REL Short-term value: 12.6* mg/m³, 2* ppm
*60-min; See Pocket Guide App. A

TLV Short-term value: 63 mg/m³, 10 ppm
Long-term value: 31 mg/m³, 5 ppm
Skin

67-66-3 trichloromethane

PEL Ceiling limit value: 240 mg/m³, 50 ppm

REL Short-term value: 9.78* mg/m³, 2* ppm
*60-min; See Pocket Guide App. A

TLV Long-term value: 49 mg/m³, 10 ppm

75-09-2 dichloromethane

PEL Short-term value: 125 ppm
Long-term value: 25 ppm
see 29 CFR 1910.1052

REL See Pocket Guide App. A

TLV Long-term value: 174 mg/m³, 50 ppm
BEI

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100-41-4 ethylbenzene

PEL Long-term value: 435 mg/m³, 100 ppm
REL Short-term value: 545 mg/m³, 125 ppm
 Long-term value: 435 mg/m³, 100 ppm
TLV Long-term value: 87 mg/m³, 20 ppm
BEI

87-68-3 hexachlorobuta-1,3-diene

REL Long-term value: 0.24 mg/m³, 0.02 ppm
 Skin; See Pocket Guide App. A
TLV Long-term value: 0.21 mg/m³, 0.02 ppm
 Skin

98-82-8 cumene

PEL Long-term value: 245 mg/m³, 50 ppm
 Skin
REL Long-term value: 245 mg/m³, 50 ppm
 Skin
TLV Long-term value: (246) NIC-0.5 mg/m³, (50) NIC-0.1 ppm
 NIC-A2

91-20-3 naphthalene

PEL Long-term value: 50 mg/m³, 10 ppm
REL Short-term value: 75 mg/m³, 15 ppm
 Long-term value: 50 mg/m³, 10 ppm
TLV Long-term value: 52 mg/m³, 10 ppm
 Skin; BEI

100-42-5 styrene

PEL Long-term value: 100 ppm
 Ceiling limit value: 200; 600* ppm
 *5-min peak in any 3 hrs
REL Short-term value: 425 mg/m³, 100 ppm
 Long-term value: 215 mg/m³, 50 ppm
TLV Short-term value: 170 mg/m³, 40 ppm
 Long-term value: 85 mg/m³, 20 ppm
BEI

127-18-4 tetrachloroethylene

PEL Long-term value: 100 ppm
 Ceiling limit value: 200; 300* ppm
 *5-min peak in any 3 hrs
REL Minimize workplace exp. concs.; Pocket Guide App. A
TLV Short-term value: 685 mg/m³, 100 ppm
 Long-term value: 170 mg/m³, 25 ppm
BEI

108-88-3 toluene

PEL Long-term value: 200 ppm
 Ceiling limit value: 300; 500* ppm
 *10-min peak per 8-hr shift

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REL Short-term value: 560 mg/m³, 150 ppm
Long-term value: 375 mg/m³, 100 ppm

TLV Long-term value: 75 mg/m³, 20 ppm
BEI

79-01-6 trichloroethylene

PEL Long-term value: 100 ppm
Ceiling limit value: 200; 300* ppm
*5-min peak in any 2 hrs

REL See Pocket Guide Apps. A and C

TLV Short-term value: 135 mg/m³, 25 ppm
Long-term value: 54 mg/m³, 10 ppm
BEI

630-20-6 1,1,1,2-Tetrachloroethane

REL Handle with caution; See Pocket Guide App. C

Ingredients with biological limit values:
67-56-1 methanol

BEI 15 mg/L
Medium: urine
Time: end of shift
Parameter: Methanol (background, nonspecific)

71-43-2 benzene

BEI 25 µg/g creatinine
Medium: urine
Time: end of shift
Parameter: S-Phenylmercapturic acid (background)

500 µg/g creatinine
Medium: urine
Time: end of shift
Parameter: t,t-Muconic acid (background)

75-09-2 dichloromethane

BEI 0.3 mg/L
Medium: urine
Time: end of shift
Parameter: Dichloromethane (semi-quantitative)

100-41-4 ethylbenzene

BEI 0.7 g/g creatinine
Medium: urine
Time: end of shift at end of workweek
Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific, semi-quantitative)

-
Medium: end-exhaled air
Time: not critical
Parameter: Ethyl benzene (semi-quantitative)

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100-42-5 styrene

BEI 400 mg/g creatinine
 Medium: urine
 Time: end of shift
 Parameter: Mandelic acid plus phenylglyoxylic acid (nonspecific)

0.2 mg/L
 Medium: venous blood
 Time: end of shift
 Parameter: Styrene (semi-quantitative)

127-18-4 tetrachloroethylene

BEI 3 ppm
 Medium: end-exhaled air
 Time: prior to shift
 Parameter: Tetrachloroethylene

0.5 mg/L
 Medium: blood
 Time: prior to shift
 Parameter: Tetrachloroethylene

108-88-3 toluene

BEI 0.02 mg/L
 Medium: blood
 Time: prior to last shift of workweek
 Parameter: Toluene

0.03 mg/L
 Medium: urine
 Time: end of shift
 Parameter: Toluene

0.3 mg/g creatinine
 Medium: urine
 Time: end of shift
 Parameter: o-Cresol with hydrolysis (background)

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79-01-6 trichloroethylene

BEI	15 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Trichloroacetic acid (nonspecific)
	0.5 mg/L Medium: blood Time: end of shift at end of workweek Parameter: Trichloroethanol without hydrolysis (nonspecific)
	- Medium: blood Time: end of shift at end of workweek Parameter: Trichloroethylene (semi-quantitative)
	- Medium: end-exhaled air Time: end of shift at end of workweek Parameter: Trichloroethylene (semi-quantitative)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**


Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Fluid
Color:	Colorless
Odor:	Characteristic
Odor threshold:	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	64.7 °C (148.5 °F)

· **Flash point:** 11 °C (51.8 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 455 °C (851 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower:	5.5 Vol %
Upper:	44 Vol %

· **Vapor pressure at 20 °C (68 °F):** 128 hPa (96 mm Hg)

· **Density:** Not determined.

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**
Water: Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic:	Not determined.
Kinematic:	Not determined.

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· Solvent content:	
Organic solvents:	94.8 %
VOC content:	94.20 %
	942.0 g/l / 7.86 lb/gal
· Solids content:	
	0.8 %
· Other information	
	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

67-56-1 methanol		
Oral	LD50	5,628 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)
71-55-6 1,1,1-trichloroethane		
Oral	LD50	10,300 mg/kg (rat)
79-34-5 1,1,2,2-tetrachloroethane		
Oral	LD50	800 mg/kg (rat)
75-35-4 1,1-dichloroethylene		
Inhalative	LC50/4 h	6,350 mg/l (mouse)
96-18-4 1,2,3-trichloropropane		
Oral	LD50	320 mg/kg (rat)
Dermal	LD50	1,770 mg/kg (rabbit)
120-82-1 1,2,4-trichlorobenzene		
Oral	LD50	756 mg/kg (rat)
96-12-8 1,2-dibromo-3-chloropropane		
Oral	LD50	170 mg/kg (rat)
Dermal	LD50	1,420 mg/kg (rat)
106-93-4 1,2-dibromoethane		
Oral	LD50	108 mg/kg (rat)

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Dermal	LD50	300 mg/kg (rabbit)
95-50-1 1,2-dichlorobenzene		
Oral	LD50	500 mg/kg (rat)
107-06-2 1,2-dichloroethane		
Oral	LD50	670 mg/kg (rat)
Dermal	LD50	2,800 mg/kg (rat)
78-87-5 1,2-dichloropropane		
Oral	LD50	2,196 mg/kg (rat)
Dermal	LD50	8,750 mg/kg (rabbit)
106-46-7 1,4-dichlorobenzene		
Oral	LD50	500 mg/kg (rat)
71-43-2 benzene		
Oral	LD50	4,894 mg/kg (rat)
Dermal	LD50	48 mg/kg (mouse)
Inhalative	LC50/4 h	9,980 mg/l (mouse)
56-23-5 carbon tetrachloride		
Oral	LD50	2,350 mg/kg (rat)
Dermal	LD50	5,070 mg/kg (rat)
67-66-3 trichloromethane		
Oral	LD50	908 mg/kg (rat)
Dermal	LD50	75 mg/kg (rat)
75-09-2 dichloromethane		
Oral	LD50	1,600 mg/kg (rat)
Inhalative	LC50/4 h	24,488 mg/l (rat)
100-41-4 ethylbenzene		
Oral	LD50	3,500 mg/kg (rat)
Dermal	LD50	17,800 mg/kg (rabbit)
98-82-8 cumene		
Oral	LD50	1,400 mg/kg (rat)
Dermal	LD50	12,300 mg/kg (rabbit)
Inhalative	LC50/4 h	24.7 mg/l (mouse)
91-20-3 naphthalene		
Oral	LD50	490 mg/kg (rat)
Dermal	LD50	5,000 mg/kg (rat)
103-65-1 propylbenzene		
Oral	LD50	6,040 mg/kg (rat)
100-42-5 styrene		
Oral	LD50	5,000 mg/kg (rat)
Inhalative	LC50/4 h	24 mg/l (rat)

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127-18-4 tetrachloroethylene

Oral	LD50	2,629 mg/kg (rat)
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108-88-3 toluene

Oral	LD50	5,000 mg/kg (rat)
Dermal	LD50	12,124 mg/kg (rabbit)
Inhalative	LC50/4 h	5,320 mg/l (mouse)

79-01-6 trichloroethylene

Oral	LD50	2,402 mg/kg (mouse)
Dermal	LD50	8,450 mg/kg (mouse)

· Primary irritant effect:
· on the skin: No irritant effect.

· on the eye: No irritating effect.

· Sensitization: Sensitization possible through skin contact.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Irritant

The product can cause inheritable damage.

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)

71-55-6	1,1,1-trichloroethane	3
79-34-5	1,1,2,2-tetrachloroethane	2B
79-00-5	1,1,2-trichloroethane	3
75-35-4	1,1-dichloroethylene	3
96-18-4	1,2,3-trichloropropane	2A
96-12-8	1,2-dibromo-3-chloropropane	2B
106-93-4	1,2-dibromoethane	2A
95-50-1	1,2-dichlorobenzene	3
107-06-2	1,2-dichloroethane	2B
78-87-5	1,2-dichloropropane	1
541-73-1	1,3-dichlorobenzene	3
106-46-7	1,4-dichlorobenzene	2B
71-43-2	benzene	1
75-27-4	bromodichloromethane	2B
75-25-2	bromoform	3
56-23-5	carbon tetrachloride	2B
67-66-3	trichloromethane	2B
124-48-1	dibromochloromethane	3
75-09-2	dichloromethane	2A
100-41-4	ethylbenzene	2B
87-68-3	hexachlorobuta-1,3-diene	3
98-82-8	cumene	2B

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108-38-3	<i>m</i> -xylene	3
91-20-3	naphthalene	2B
95-47-6	<i>o</i> -xylene	3
106-42-3	<i>p</i> -xylene	3
100-42-5	styrene	2B
127-18-4	tetrachloroethylene	2A
108-88-3	toluene	3
79-01-6	trichloroethylene	1

· **NTP (National Toxicology Program)**

96-18-4	1,2,3-trichloropropane	R
96-12-8	1,2-dibromo-3-chloropropane	R
106-93-4	1,2-dibromoethane	R
107-06-2	1,2-dichloroethane	R
106-46-7	1,4-dichlorobenzene	R
71-43-2	benzene	K
75-27-4	bromodichloromethane	R
56-23-5	carbon tetrachloride	R
67-66-3	trichloromethane	R
75-09-2	dichloromethane	R
98-82-8	cumene	R
91-20-3	naphthalene	R
100-42-5	styrene	R
127-18-4	tetrachloroethylene	R
79-01-6	trichloroethylene	K

· **OSHA-Ca (Occupational Safety & Health Administration)**

96-12-8	1,2-dibromo-3-chloropropane	
71-43-2	benzene	
75-09-2	dichloromethane	

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

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· Results of PBT and vPvB assessment
· PBT:

87-61-6	1,2,3-trichlorobenzene
120-82-1	1,2,4-trichlorobenzene
87-68-3	hexachlorobuta-1,3-diene

· vPvB:

87-68-3	hexachlorobuta-1,3-diene
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· Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods
· Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:
· Recommendation: Disposal must be made according to official regulations.

14 Transport information

· UN-Number
· DOT, ADR, IMDG, IATA

UN1992

· UN proper shipping name
· DOT

Flammable liquids, toxic, n.o.s. (Methanol)

· ADR

1992 Flammable liquids, toxic, n.o.s. (Methanol)

· IMDG, IATA

FLAMMABLE LIQUID, TOXIC, N.O.S. (METHANOL)

· Transport hazard class(es)
· DOT

· Class

3 Flammable liquids

· Label

3, 6.1

· ADR

· Class

3 Flammable liquids

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· **Label** 3+6.1

· **IMDG**



· **Class** 3 Flammable liquids
· **Label** 3/6.1

· **IATA**



· **Class** 3 Flammable liquids
· **Label** 3 (6.1)

· **Packing group**

· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards:** Not applicable.

· **Special precautions for user** Warning: Flammable liquids

· **Danger code (Kemler):** 336

· **EMS Number:** F-E,S-D

· **Stowage Category** B

· **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations** On passenger aircraft/rail: 1 L
On cargo aircraft only: 60 L

· **ADR**

· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **IMDG**

· **Limited quantities (LQ)** 1L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1992 FLAMMABLE LIQUIDS, TOXIC, N.O.S. (METHANOL), 3 (6.1), II

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15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

75-34-3	1,1-dichloroethane
67-66-3	trichloromethane

· Section 313 (Specific toxic chemical listings):

67-56-1	methanol
71-55-6	1,1,1-trichloroethane
79-34-5	1,1,2,2-tetrachloroethane
79-00-5	1,1,2-trichloroethane
75-34-3	1,1-dichloroethane
75-35-4	1,1-dichloroethylene
96-18-4	1,2,3-trichloropropane
120-82-1	1,2,4-trichlorobenzene
95-63-6	1,2,4-trimethylbenzene
96-12-8	1,2-dibromo-3-chloropropane
106-93-4	1,2-dibromoethane
95-50-1	1,2-dichlorobenzene
107-06-2	1,2-dichloroethane
78-87-5	1,2-dichloropropane
541-73-1	1,3-dichlorobenzene
106-46-7	1,4-dichlorobenzene
71-43-2	benzene
75-27-4	bromodichloromethane
75-25-2	bromoform
56-23-5	carbon tetrachloride
108-90-7	chlorobenzene
67-66-3	trichloromethane
74-95-3	dibromomethane
75-09-2	dichloromethane
100-41-4	ethylbenzene
87-68-3	hexachlorobuta-1,3-diene
98-82-8	cumene
108-38-3	m-xylene
91-20-3	naphthalene
95-47-6	o-xylene

· TSCA (Toxic Substances Control Act):

67-56-1	methanol
71-55-6	1,1,1-trichloroethane

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79-34-5	1,1,2,2-tetrachloroethane
79-00-5	1,1,2-trichloroethane
75-34-3	1,1-dichloroethane
75-35-4	1,1-dichloroethylene
87-61-6	1,2,3-trichlorobenzene
96-18-4	1,2,3-trichloropropane
120-82-1	1,2,4-trichlorobenzene
95-63-6	1,2,4-trimethylbenzene
96-12-8	1,2-dibromo-3-chloropropane
106-93-4	1,2-dibromoethane
95-50-1	1,2-dichlorobenzene
107-06-2	1,2-dichloroethane
78-87-5	1,2-dichloropropane
108-67-8	mesitylene
541-73-1	1,3-dichlorobenzene
142-28-9	1,3-dichloropropane
106-46-7	1,4-dichlorobenzene
594-20-7	2,2-dichloropropane
95-49-8	2-chlorotoluene
106-43-4	4-chlorotoluene
71-43-2	benzene
108-86-1	bromobenzene
74-97-5	bromochloromethane
75-27-4	bromodichloromethane
75-25-2	bromoform
56-23-5	carbon tetrachloride
108-90-7	chlorobenzene
67-66-3	trichloromethane

· **TSCA new (21st Century Act) (Substances not listed)**

96-12-8	1,2-dibromo-3-chloropropane
75-27-4	bromodichloromethane
10061-01-5	(Z)-1,3-dichloropropene
87-68-3	hexachlorobuta-1,3-diene
10061-02-6	trans-1,3-Dichloropropene

· **Proposition 65**

· **Chemicals known to cause cancer:**

79-34-5	1,1,2,2-tetrachloroethane
79-00-5	1,1,2-trichloroethane
75-34-3	1,1-dichloroethane
96-18-4	1,2,3-trichloropropane

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96-12-8	1,2-dibromo-3-chloropropane
106-93-4	1,2-dibromoethane
107-06-2	1,2-dichloroethane
78-87-5	1,2-dichloropropane
106-46-7	1,4-dichlorobenzene
71-43-2	benzene
75-27-4	bromodichloromethane
75-25-2	bromoform
56-23-5	carbon tetrachloride
67-66-3	trichloromethane
75-09-2	dichloromethane
100-41-4	ethylbenzene
87-68-3	hexachlorobuta-1,3-diene
98-82-8	cumene
91-20-3	naphthalene
100-42-5	styrene
127-18-4	tetrachloroethylene
79-01-6	trichloroethylene
630-20-6	1,1,1,2-Tetrachloroethane

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

96-12-8	1,2-dibromo-3-chloropropane
106-93-4	1,2-dibromoethane
71-43-2	benzene
79-01-6	trichloroethylene

· **Chemicals known to cause developmental toxicity:**

67-56-1	methanol
106-93-4	1,2-dibromoethane
71-43-2	benzene
67-66-3	trichloromethane
108-88-3	toluene
79-01-6	trichloroethylene

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency) (Substances not listed)**

67-56-1	methanol
563-58-6	1,1-dichloropropene
87-61-6	1,2,3-trichlorobenzene
96-12-8	1,2-dibromo-3-chloropropane
78-87-5	1,2-dichloropropane

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142-28-9	1,3-dichloropropane
106-46-7	1,4-dichlorobenzene
594-20-7	2,2-dichloropropane
95-49-8	2-chlorotoluene
106-43-4	4-chlorotoluene
10061-01-5	(Z)-1,3-dichloropropene
74-95-3	dibromomethane
104-51-8	butylbenzene
103-65-1	propylbenzene
99-87-6	Cymol
135-98-8	sec-butylbenzene
100-42-5	styrene
98-06-6	tert-butylbenzene
10061-02-6	trans-1,3-Dichloropropene

· TLV (Threshold Limit Value established by ACGIH)

71-55-6	1,1,1-trichloroethane	A4
79-34-5	1,1,2,2-tetrachloroethane	A3
79-00-5	1,1,2-trichloroethane	A3
75-34-3	1,1-dichloroethane	A4
75-35-4	1,1-dichloroethylene	A4
96-18-4	1,2,3-trichloropropane	A3
106-93-4	1,2-dibromoethane	A3
95-50-1	1,2-dichlorobenzene	A4
107-06-2	1,2-dichloroethane	A4
78-87-5	1,2-dichloropropane	A4
106-46-7	1,4-dichlorobenzene	A3
71-43-2	benzene	A1
75-25-2	bromoform	A3
56-23-5	carbon tetrachloride	A2
108-90-7	chlorobenzene	A3
67-66-3	trichloromethane	A3
75-09-2	dichloromethane	A3
100-41-4	ethylbenzene	A3
87-68-3	hexachlorobuta-1,3-diene	A3
108-38-3	m-xylene	A4
91-20-3	naphthalene	A4
95-47-6	o-xylene	A4
106-42-3	p-xylene	A4
100-42-5	styrene	A4
127-18-4	tetrachloroethylene	A3

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108-88-3	toluene	A4
79-01-6	trichloroethylene	A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

79-34-5	1,1,2,2-tetrachloroethane
79-00-5	1,1,2-trichloroethane
75-35-4	1,1-dichloroethylene
96-18-4	1,2,3-trichloropropane
96-12-8	1,2-dibromo-3-chloropropane
106-93-4	1,2-dibromoethane
107-06-2	1,2-dichloroethane
78-87-5	1,2-dichloropropane
106-46-7	1,4-dichlorobenzene
71-43-2	benzene
56-23-5	carbon tetrachloride
67-66-3	trichloromethane
75-09-2	dichloromethane
87-68-3	hexachlorobuta-1,3-diene
127-18-4	tetrachloroethylene
79-01-6	trichloroethylene

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



· **Signal word** Danger

· **Hazard-determining components of labeling:**

methanol

1,2-dibromo-3-chloropropane

carbon tetrachloride

1,1,2,2-tetrachloroethane

1,3-dichloropropane

(Z)-1,3-dichloropropene

trans-1,3-Dichloropropene

· **Hazard statements**

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled.

H317 May cause an allergic skin reaction.

H340 May cause genetic defects.

H350 May cause cancer.

H370 Causes damage to organs.

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

· **Precautionary statements**

Obtain special instructions before use.

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Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Get medical advice/attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO₂, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

- **National regulations:**
- **Additional classification according to Decree on Hazardous Materials:**
Carcinogenic hazardous material group III (dangerous).
- **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
Exceptions can be made by the authorities in certain cases.
- **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** *Environment protection department.*
- **Contact:**
High-Purity Standards
Tel: 843-767-7900
Fax: 843-767-7906
- **Date of preparation / last revision** 05/31/2018 / -
- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances

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Safety Data Sheet
acc. to OSHA HCS

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Reviewed on 05/31/2018

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*CAS: Chemical Abstracts Service (division of the American Chemical Society)**NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**VOC: Volatile Organic Compounds (USA, EU)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**BEI: Biological Exposure Limit**Flam. Liq. 2: Flammable liquids – Category 2**Acute Tox. 3: Acute toxicity – Category 3**Skin Sens. 1: Skin sensitisation – Category 1**Muta. 1B: Germ cell mutagenicity – Category 1B**Carc. 1A: Carcinogenicity – Category 1A**STOT SE 1: Specific target organ toxicity (single exposure) – Category 1**STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2*