Safety Data Sheet
Ethanol Spec IND PM 3224 190 Proof

Version 1.0 Revision Date: 02/02/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ethanol Spec IND PM 3224 190 Proof
Product Use Description : Alcohol solvent.

Manufacturer or supplier's details

Company : Nexeo Solutions LLC
Address 3 Waterway Square Place Suite 1000
Woodlands, Tx. 77380
United States of America

Emergency telephone number:
Health North America: 1-855-NEXEO4U (1-855-639-3648)
Health International: 1-855-NEXEO4U (1-855-639-3648)
Transport North America: CHEMTREC 800.424.9300

Additional Information: : Responsible Party: Product Safety Group
E-Mail: msds@nexeosolutions.com
SDS Requests: 1-855-429-2661
SDS Requests Fax: 1-281-500-2370
Website: www.nexeosolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 2

Eye irritation : Category 2A

Carcinogenicity : Category 2

Reproductive toxicity : Category 2

Specific target organ toxicity - single exposure : Category 1 (Eyes, Central nervous system)

Specific target organ toxicity - single exposure : Category 3 (Respiratory system, Central nervous system)

GHS Label element

Hazard pictograms :

Signal word	:	Danger
Hazard statements	:	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness. H351 Suspected of causing cancer. H361 Suspected of damaging fertility or the unborn child. H371 May cause damage to organs.
Precautionary statements	:	**Prevention:** P201 Obtain special instructions before use. P210 Keep away from open flames/hot surfaces. - No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P242 Use only non-sparking tools. 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. P281 Use personal protective equipment as required. **Response:** P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician. P337 + P313 If eye irritation persists: Get medical advice/ attention. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. **Storage:** P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. **Disposal:** P501 Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Carcinogenicity:

IARC	Group 2B: Possibly carcinogenic to humans	
	108-10-1	Methyl isobutyl ketone
	64742-49-0	Naphtha (pet), hydrotreated lt
	64742-89-8	Solvent naphtha (pet), lt aliph.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.	
OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.	
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.	

Emergency Overview

Appearance	liquid
Colour	colourless
Odour	alcohol-like
Hazard Summary	No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical Name	Concentration (%)
64-17-5	Ethanol	90 - 100
67-56-1	Methanol	1 - 5
141-78-6	Ethyl acetate	1 - 5
108-10-1	Methyl isobutyl ketone	0.1 - 1
64742-49-0	Naphtha (pet), hydrotreated lt	0 - 1
64742-89-8	Solvent naphtha (pet), lt aliph.	0 - 1

142-82-5	Heptane	0.1 - 1

Special Notes: : The ingredients listed may be used interchangeably as functional equivalents.

SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.

If inhaled : If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : No hazardous combustion products are known

Specific extinguishing methods : Use a water spray to cool fully closed containers.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing wa-

ter must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

NFPA Flammable and Combustible Liquids Classification:
Flammable Liquid Class IB

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Container may be opened only under exhaust ventila-

tion hood.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : No smoking.
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.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
64-17-5	Ethanol	TWA	1,000 ppm	ACGIH
		TWA	1,000 ppm 1,900 mg/m3	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m3	OSHA Z-1
		TWA	1,000 ppm 1,900 mg/m3	OSHA P0
		STEL	1,000 ppm	ACGIH
67-56-1	Methanol	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		TWA	200 ppm 260 mg/m3	NIOSH REL
		ST	250 ppm 325 mg/m3	NIOSH REL
		TWA	200 ppm 260 mg/m3	OSHA Z-1
		STEL	250 ppm 325 mg/m3	OSHA P0
		TWA	200 ppm 260 mg/m3	OSHA P0
141-78-6	Ethyl acetate	TWA	400 ppm	ACGIH
		TWA	400 ppm 1,400 mg/m3	NIOSH REL

		TWA	400 ppm 1,400 mg/m3	OSHA Z-1
		TWA	400 ppm 1,400 mg/m3	OSHA P0
108-10-1	Methyl isobutyl ketone	TWA	20 ppm	ACGIH
		STEL	75 ppm	ACGIH
		TWA	50 ppm 205 mg/m3	NIOSH REL
		ST	75 ppm 300 mg/m3	NIOSH REL
		TWA	100 ppm 410 mg/m3	OSHA Z-1
		TWA	50 ppm 205 mg/m3	OSHA P0
		STEL	75 ppm 300 mg/m3	OSHA P0
64742-49-0	Naphtha (pet), hydro-treated lt	TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	400 ppm 1,600 mg/m3	OSHA P0
64742-89-8	Solvent naphtha (pet), lt aliph.	TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	400 ppm 1,600 mg/m3	OSHA P0
142-82-5	Heptane	TWA	85 ppm 350 mg/m3	NIOSH REL
		C	440 ppm 1,800 mg/m3	NIOSH REL
		TWA	500 ppm 2,000 mg/m3	OSHA Z-1
		TWA	400 ppm 1,600 mg/m3	OSHA P0
		STEL	500 ppm 2,000 mg/m3	OSHA P0

Biological occupational exposure limits

Components	CAS-No.	Control parame-ters	Biological specimen	Sam-pling time	Permissi-ble con-centration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after expo-sure ceases)	15 mg/l	ACGIH BEI

Methyl isobutyl ketone	108-10-1	MIBK	In urine	End of shift (As soon as possible after exposure ceases)	1 mg/l	ACGIH BEI

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.
In the case of vapour formation use a respirator with an approved filter.

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Skin and body protection : impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : colourless

Odour : alcohol-like

Odour Threshold : No data available

pH : No data available

Freezing Point (Melting point/freezing point) : < -90 °C (< -130 °F)

Boiling Point (Boiling point/boiling range)	:	80 °C (176 °F) (1013 hPa)
Flash point	:	13.88 °C (56.98 °F)
Evaporation rate	:	1.7 n-Butyl Acetate
Flammability (solid, gas)	:	No data available
Burning rate	:	No data available
Upper explosion limit	:	21.1 %(V)
Lower explosion limit	:	3.3 %(V)
Vapour pressure	:	46 mmHg @ 20 °C (68 °F)
Relative vapour density	:	1.6(Air = 1.0)
Relative density	:	0.806 @ 25 °C (77 °F)
Density	:	0.806 g/cm3 @ 25 °C (77 °F)
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	completely soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	423.9 °C
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	1.2 mPa.s

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No hazards to be specially mentioned.

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	Keep away from heat, flame, sparks and other ignition sources.
Incompatible materials	:	Alkali metals Ammonia Oxidizing agents peroxides Strong acids

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate : 2,164 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate : > 40 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method

Components:

64-17-5:

Acute oral toxicity	:	LD50 (rat): 7,060 mg/kg
Acute inhalation toxicity	:	LC50 (rat): 124.7 mg/l
Acute dermal toxicity	:	Remarks: No data available

67-56-1:

Acute oral toxicity	:	LD50 (rat): 100 mg/kg Assessment: The component/mixture is toxic after single ingestion.
Acute inhalation toxicity	:	LC50 (rat): 5 mg/l

Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : LD50 (rabbit): 300 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.

141-78-6:
Acute oral toxicity : LD50 (rat): 5,620 mg/kg

Acute inhalation toxicity : LD L0 (rat, male and female): > 22.5 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.
Remarks: Not classified

Acute dermal toxicity : LD50 (rabbit): > 20,000 mg/kg

108-10-1:
Acute oral toxicity : LD50 (rat): 2,080 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (rat): 10 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

64742-49-0:
Acute oral toxicity : LD50 (rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : LD50 (rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

64742-89-8:

Acute oral toxicity	:	LD50 (rat, male and female): > 5,000 mg/kg Method: OECD Test Guideline 401 GLP: yes
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	LD50 (rabbit, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402 GLP: yes

142-82-5:

Acute oral toxicity	:	LD50 (rat, male and female): 5,000 mg/kg Method: OECD Test Guideline 401 Symptoms: Salivation GLP: yes Remarks: Information given is based on data obtained from similar substances.
Acute inhalation toxicity	:	LC50 (rat, male and female): 73.5 mg/l Exposure time: 4 h Test atmosphere: vapour Method: OECD Test Guideline 403
Acute dermal toxicity	:	LD50 (rabbit, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402 GLP: yes Remarks: Information given is based on data obtained from similar substances.

Skin corrosion/irritation

Components:

64-17-5:
Species: rabbit
Result: No skin irritation

67-56-1:
Species: rabbit
Result: No skin irritation

141-78-6:
Species: rabbit
Result: Mild skin irritation

108-10-1:
Species: rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404

Result: No skin irritation
GLP: yes

64742-49-0:
Species: rabbit
Result: Irritating to skin.

64742-89-8:
Species: rabbit
Exposure time: 4 h
Result: Irritating to skin.

142-82-5:
Species: rabbit
Exposure time: 24 h
Method: OECD Test Guideline 404
Result: Irritating to skin.
GLP: yes
Remarks: Based on a similar product formulation.

Serious eye damage/eye irritation

Product:
Result: Irritating to eyes.

Components:
64-17-5:
Species: rabbit
Result: Irritating to eyes.

67-56-1:
Species: rabbit
Result: No eye irritation

141-78-6:
Species: rabbit
Result: Irritating to eyes.

108-10-1:
Species: rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405
GLP: yes

64742-49-0:
Species: rabbit
Result: Irritating to eyes.

64742-89-8:
Species: rabbit
Result: Irritating to eyes.

142-82-5:
Species: rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Respiratory or skin sensitisation

Components:

64-17-5:
Test Type: lymph node assay
Species: mouse
Method: OECD Test Guideline 429
GLP: No data available
Remarks: Did not cause sensitisation on laboratory animals.

67-56-1:
Test Type: Maximisation Test (GPMT)
Species: guinea pig
Method: OECD Test Guideline 406
Result: Did not cause sensitisation on laboratory animals.

141-78-6:
Species: guinea pig
Result: Did not cause sensitisation on laboratory animals.

108-10-1:
Test Type: Maximisation Test (GPMT)
Species: guinea pig
Method: OECD Test Guideline 406
Result: Did not cause sensitisation on laboratory animals.

64742-49-0:
Test Type: Buehler Test
Species: guinea pig
Result: Did not cause sensitisation on laboratory animals.

64742-89-8:
Test Type: Buehler Test
Species: guinea pig
Result: Did not cause sensitisation on laboratory animals.

142-82-5:
Test Type: Maximization test

Species: guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.
Remarks: Based on a similar product formulation.

Germ cell mutagenicity

Components:

64-17-5:

Genotoxicity in vitro : Test Type: Mammalian cell gene mutation assay
Test species: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: No data available

Genotoxicity in vivo : Test Type: Dominant lethal assay
Test species: mouse (male)
Application Route: Oral
Dose: 10 or 40% ethanol in water
Method: OECD Test Guideline 478
Result: negative
GLP: No data available

Germ cell mutagenicity-Assessment : Mutagenicity classification not possible from current data

67-56-1:

Genotoxicity in vitro : Test Type: DNA damage and/or repair
Metabolic activation: with and without metabolic activation
Result: Ambiguous

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal
Exposure time: Single
Dose: 0, 1920, 3200, 4480 mg/kg
Result: negative

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

141-78-6:

Genotoxicity in vitro : Test Type: Ames test
Test species: Salmonella typhimurium
Metabolic activation: with and without metabolic acti-

vation
Method: OECD Test Guideline 471
Result: negative
GLP: No data available

: Test Type: Chromosome aberration test in vitro
Test species: Chinese hamster ovary (CHO)
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: No data available

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: Chinese hamster (male and female)
Application Route: Oral
Dose: 2500 mg/kg bw
Method: OECD Test Guideline 474
Result: negative
GLP: No data available

Germ cell mutagenicity-Assessment : Animal testing did not show any mutagenic effects.

108-10-1:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: mouse
Cell type: Bone marrow
Application Route: Intraperitoneal
Exposure time: 12 - 48 h
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

64742-49-0:

Germ cell mutagenicity-Assessment : Mutagenicity classification not possible from current data

64742-89-8:

Germ cell mutagenicity-Assessment : Mutagenicity classification not possible from current data

142-82-5:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test species: Rat liver
Metabolic activation: Without metabolic activation
Method: OECD Test Guideline 473
Result: negative

: Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Germ cell mutagenicity-Assessment : Did not show mutagenic effects in animal experiments.

Carcinogenicity

Components:

64-17-5:

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

67-56-1:

Carcinogenicity - Assessment : Suspected human carcinogens

141-78-6:

Species: mouse, (male and female)
Application Route: Intraperitoneal injection
Exposure time: 8 wk
Dose: 150 and 750 mg/kg bw/injection
Frequency of Treatment: 3 days/week
Result: did not display carcinogenic properties

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

108-10-1:

Species: rat, (male and female)
Application Route: inhalation (vapour)
Exposure time: 2 yrs
Dose: 0, 450, 900, 1800 ppm
Frequency of Treatment: 6 h/d, 5 d/wk
NOAEL: 450 ppm

Method: OECD Test Guideline 451
Result: Evidence of renal carcinogenesis that is not relevant to humans
GLP: yes

Carcinogenicity - Assessment : Suspected human carcinogens

64742-49-0:
Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

64742-89-8:
Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

142-82-5:
Remarks: This information is not available.

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

Reproductive toxicity

Components:

64-17-5:
Effects on fertility : Test Type: Two-generation study
Species: mouse, male and female
Application Route: oral
Dose: 5, 10 and 15% v/v in water
General Toxicity - Parent: NOAEL: 15 % diet
General Toxicity F1: NOAEL: 10 % diet
Symptoms: reduced litter size Reduced sperm motility in F1 generation
Method: OECD Test Guideline 416
GLP: No data available

Effects on foetal development : Species: rat
Application Route: Inhalation
Dose: 10,000, 16,000 or 20,000 ppm
General Toxicity Maternal: NOAEL: 16,000 ppm
Teratogenicity: NOAEL: > 20,000 ppm
Symptoms: No malformations were observed.
Method: OECD Test Guideline 414
GLP: No data available

Reproductive toxicity - Assessment : Fertility classification not possible from current data.
Embryotoxicity classification not possible from current data.

67-56-1:

Effects on fertility : Test Type: Two-generation study
Species: rat, male and female
Application Route: Inhalation
Dose: 0, 0.013, 0.13, 1.3 mg/L
Duration of Single Treatment: 20 h
General Toxicity - Parent: NOAEC: 1.3 mg/l
General Toxicity F1: NOAEC: 0.13 mg/l
Fertility: NOAEC: 1.3 mg/l
Symptoms: Effects on postnatal development.
Result: Animal testing did not show any effects on fertility.

Effects on foetal development : Species: rat
Application Route: inhalation (vapour)
Dose: 0, 6.65, 13.3, 26.6 mg/L
Duration of Single Treatment: 20 d
Frequency of Treatment: 7 hr/day
General Toxicity Maternal: NOAEC: 13.3 mg/L
Teratogenicity: NOAEC: 6.65 mg/L
Result: Teratogenic effects.

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

141-78-6:

Effects on fertility : Test Type: Two-generation study
Species: mouse, male and female
Application Route: Oral
Dose: 5, 10 and 15% v/v in water
General Toxicity - Parent: NOAEL: 15 % diet
General Toxicity F1: NOAEL: 10 % diet
Symptoms: reduced litter size
Method: OECD Test Guideline 416
GLP: No data available
Remarks: Information given is based on data obtained from similar substances.

Species: rat, male
Application Route: Inhalation
Dose: 350, 750, 1500 ppm
Duration of Single Treatment: 6 h
Frequency of Treatment: 5 days/week
General Toxicity - Parent: NOAEL: 1,500 ppm
Result: Animal testing did not show any effects on fertility.
GLP: yes

Effects on foetal development	:	Species: rat Application Route: Inhalation Dose: 10,000, 16,000 or 20,000 ppm General Toxicity Maternal: NOAEL: 16,000 ppm Teratogenicity: NOAEL: > 20,000 ppm Symptoms: No malformations were observed. Method: OECD Test Guideline 414 GLP: No data available Remarks: Information given is based on data obtained from similar substances.
Reproductive toxicity - Assessment	:	No toxicity to reproduction Animal testing did not show any effects on foetal development.

108-10-1:

Effects on fertility	:	Test Type: Two-generation study Species: rat, male and female Application Route: inhalation (vapour) Dose: 0, 500, 1000, 2000 ppm Duration of Single Treatment: 6 h Frequency of Treatment: 7 days/week General Toxicity - Parent: NOAEC: 1,000 ppm General Toxicity F1: NOAEC: 1,000 ppm Fertility: NOAEC: 2,000 ppm Symptoms: Maternal effects. sedation Method: OECD Test Guideline 416 Result: Animal testing did not show any effects on fertility.
Effects on foetal development	:	Species: rat Application Route: inhalation (vapour) Dose: 0, 300, 1000, 3000 ppm Duration of Single Treatment: 10 d Frequency of Treatment: 6 hr/day General Toxicity Maternal: NOAEC: 1,000 ppm Teratogenicity: NOAEC: 3,000 ppm Symptoms: Maternal toxicity, Specific developmental abnormalities., Reduced body weight, Reduced number of viable fetuses. Method: OECD Test Guideline 414 Result: No teratogenic effects. GLP: yes
Reproductive toxicity - Assessment	:	No evidence of adverse effects on sexual function and fertility, and on development, based on animal experiments.

64742-49-0:

Reproductive toxicity -	:	Fertility classification not possible from current data.

Assessment: Embryotoxicity classification not possible from current data.

64742-89-8:

Reproductive toxicity - Assessment : Fertility classification not possible from current data.
Embryotoxicity classification not possible from current data.

142-82-5:

Effects on fertility : Test Type: Two-generation study
Species: rat, male and female
Application Route: vapour
Dose: 0, 900, 3000, 9000 ppm
Frequency of Treatment: 5 days/week
General Toxicity - Parent: NOAEC: 3,000 ppm
General Toxicity F1: NOAEC: 3,000 ppm
Fertility: NOAEC: 9,000 ppm
Symptoms: Reduced maternal body weight gain. Reduced offspring weight gain.
Method: OECD Test Guideline 416
Result: No reproductive effects.
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Effects on foetal development : Species: mouse
Application Route: inhalation (vapour)
Dose: 0, 900, 3000, 9000 ppm
Duration of Single Treatment: 10 d
Frequency of Treatment: 6 hr/day
General Toxicity Maternal: NOAEC: 900 ppm
Developmental Toxicity: NOAEC: 3,000 ppm
Symptoms: Skeletal malformations.
Method: OECD Test Guideline 414
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.
Embryotoxicity classification not possible from current data.

STOT - single exposure

Product: No data available

Components:

64-17-5:

Exposure routes:	Target Organs:	Assessment:	Remarks:
Inhalation	Central nervous	May cause drowsi-	

	system	ness or dizziness., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.	
Inhalation	Respiratory system	May cause respiratory irritation., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.	

67-56-1:

Exposure routes:	Target Organs:	Assessment:	Remarks:
	Eyes, Central nervous system	Causes damage to organs., The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.	

141-78-6:

Exposure routes:	Target Organs:	Assessment:	Remarks:
Inhalation	Central nervous system	May cause drowsiness or dizziness., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.	

108-10-1:

Exposure routes:	Target Organs:	Assessment:	Remarks:
Inhalation	Respiratory Tract	May cause respiratory irritation., The substance or mix-	

		ture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.	

64742-49-0:

Exposure routes:	Target Organs:	Assessment:	Remarks:
Inhalation	Central nervous system	May cause drowsiness or dizziness., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.	

64742-89-8:No data available

142-82-5:

Exposure routes:	Target Organs:	Assessment:	Remarks:
Inhalation	Central nervous system	May cause drowsiness or dizziness., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.	

STOT - repeated exposure

Product: No data available

Components:

64-17-5: No data available

67-56-1: No data available

141-78-6: No data available

108-10-1: No data available

64742-49-0: No data available

64742-89-8: No data available

142-82-5: No data available

Repeated dose toxicity

Components:

64-17-5:
Species: rat, male and female
NOAEL: 10 ml/kg
Application Route: Oral
Exposure time: 7 or 14 wk
Number of exposures: 2 times/d, 7 d/wk
Dose: 5, 10, 20ml/kg of 16.25% etoh
Method: OECD Test Guideline 408
GLP: yes

67-56-1:
Species: mouse, male and female
NOAEL: 1.3 mg/l
Application Route: Inhalation
Exposure time: 12 mths
Number of exposures: Continuous
Dose: 0, 0.013, 0.13, 1.3 mg/L

141-78-6:
Species: rat, male and female
NOAEL: 900 mg/kg
LOAEL: 3,600 mg/kg
Application Route: Oral
Exposure time: 90-92 d
Number of exposures: daily
Dose: 0, 300, 900 and 3600 mg/kg bw
GLP: yes

Species: rat, male and female
NOAEL: 350 ppm
Application Route: Inhalation
Exposure time: 94 d
Number of exposures: 6 h/d, 5 d/wk

Dose: 0, 350, 750, 1500 ppm
Symptoms: Local irritation

108-10-1:
Species: rat, male and female
NOAEL: 250 mg/kg
Application Route: Oral
Exposure time: 13 wks
Number of exposures: 7 d/wk
Dose: 0, 50, 250, 1000 mg/kg bw/day
Method: OECD Test Guideline 408
GLP: yes
Symptoms: Kidney disorders
Remarks: male rat hydrocarbon nephropathy not relevant to humans

64742-89-8:
Species: rat, male and female
NOAEL: 1402
Application Route: inhalation (vapour)
Test atmosphere: vapour
Exposure time: 13 weeks
Number of exposures: 6 hours/day, 5 days/week
Dose: 322, 1402, 9869 mg/m3
GLP: yes
Target Organs: Kidney
Symptoms: Nasal and ocular discharge

142-82-5:
Species: rat, male
NOAEL: 12470 mg/m3
Application Route: inhalation (vapour)
Exposure time: 16 wks
Number of exposures: 12 h/d, 7 d/wk
Dose: 0, 12470 mg/3

Repeated dose toxicity - Assessment : Causes skin irritation.

Aspiration toxicity

Components:

64-17-5:
No aspiration toxicity classification

141-78-6:
No aspiration toxicity classification

108-10-1:
No aspiration toxicity classification

64742-49-0:
May be fatal if swallowed and enters airways.

64742-89-8:
May be fatal if swallowed and enters airways.

142-82-5:
Aspiration Toxicity - Category 1

Further information

Product:
Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

64-17-5:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 15,300 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic inverte-brates	:	EC50 (Ceriodaphnia dubia): 5,012 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae	:	EC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: No data available

67-56-1:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and	:	EC50 (Daphnia magna (Water flea)): > 10,000 mg/l

other aquatic invertebrates		Exposure time: 48 h Test Type: static test
Toxicity to algae	:	EC50 (Scenedesmus capricornutum (fresh water algae)): 22,000 mg/l End point: Growth rate Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to bacteria	:	IC50 (activated sludge): > 1,000 mg/l End point: Growth rate Exposure time: 3 h Test Type: Static Method: OECD Test Guideline 209

141-78-6:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 220 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2,300 mg/l Exposure time: 24 h
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): 4,300 mg/l Exposure time: 24 h

108-10-1:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 179 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 200 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 400 mg/l End point: Growth rate Exposure time: 96 h Test Type: static test

Ecotoxicology Assessment

Acute aquatic toxicity	:	This product has no known ecotoxicological effects.

Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

64742-49-0:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 10 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 4.5 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 3.71 mg/l Exposure time: 96 h
Ecotoxicology Assessment Acute aquatic toxicity	:	Toxic to aquatic life.
Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

64742-89-8:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 8.2 mg/l Exposure time: 96 h Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 4.5 mg/l Exposure time: 48 h Test Type: Immobilization Analytical monitoring: yes
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 3.7 mg/l Exposure time: 96 h Test Type: static test
Ecotoxicology Assessment Acute aquatic toxicity	:	Toxic to aquatic life.
Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

142-82-5:

Toxicity to fish	:	LC50 (Carassius auratus (goldfish)): 4 mg/l Exposure time: 24 h Remarks: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1.5 mg/l Exposure time: 48 h

brates		Test Type: static test Remarks: Very toxic to aquatic organisms.
Toxicity to algae	:	Remarks: No data available
Ecotoxicology Assessment Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Components:

64-17-5:

Biodegradability	:	Result: Readily biodegradable.

67-56-1:

Biodegradability	:	aerobic Result: Readily biodegradable. Biodegradation: 72 % Remarks: Readily biodegradable
Biochemical Oxygen Demand (BOD)	:	600 - 1,120 mg/g
Chemical Oxygen Demand (COD)	:	1,420 mg/g
BOD/COD	:	BOD: 600 - 1120COD: 1420
Stability in water	:	Hydrolysis: 91 % at19 °C(72 h) Remarks: Hydrolyses on contact with water. Hydrolyses readily.

141-78-6:

Biodegradability	:	anaerobic Inoculum: activated sludge Result: Readily biodegradable.

108-10-1:

Biodegradability	:	Inoculum: activated sludge Biodegradation: 83 % Exposure time: 28 d Method: OECD Test Guideline 301F Remarks: Readily biodegradable
Biochemical Oxygen Demand (BOD)	:	1,940 mg/g

Chemical Oxygen Demand (COD)	: 2,160 mg/g
Theoritical Oxygen Demand (ThOD)	: 0.00272 mg/g

64742-49-0:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 20 mg/l
Biodegradation: 74.30 %
Exposure time: 56 d
GLP: yes
Remarks: Inherently biodegradable.

64742-89-8:

Biodegradability : Concentration: 49.2 mg/l
Result: Readily biodegradable.
Biodegradation: 77 %
Testing period: 2 d
Exposure time: 28 d
GLP: yes

142-82-5:

Biodegradability : Primary biodegradation
Inoculum: activated sludge
Concentration: 100 mg/l
Biodegradation: 100 %
Testing period: 2 d
Exposure time: 25 d
Remarks: Readily biodegradable

Bioaccumulative potential

Components:

64-17-5:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

67-56-1:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 1.0
Exposure time: 72 d
Temperature: 20 °C
Concentration: 5 mg/l
Remarks: This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

Partition coefficient: n-octanol/water	:	log Pow: -0.77

141-78-6:

Partition coefficient: n-octanol/water	:	log Pow: 0.68 (25 °C) pH: 7

108-10-1:

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water	:	Pow: 24 log Pow: Calculated 1.9

64742-49-0:

Partition coefficient: n-octanol/water	:	Remarks: No data available

64742-89-8:

Partition coefficient: n-octanol/water	:	log Pow: 2.13 - 4.85 (25 °C)

Mobility in soil

Components:

108-10-1:

Stability in soil	:	Remarks: Not expected to adsorb on soil.

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with all applicable local, state and federal regulations.

For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact NEXEO's Environmental Services Group at 800-637-7922.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

IATA (International Air Transport Association): UN1987, ALCOHOLS, N.O.S., 3, II, Flash Point:13.88 °C(56.98 °F)

IMDG (International Maritime Dangerous Goods): UN1987, ALCOHOLS, N.O.S., 3, II

DOT (Department of Transportation): UN1987, ALCOHOLS, N.O.S., 3, II

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Flammable liquid, Carcinogen, Mild skin irritant, Moderate eye irritant, Moderate respiratory irritant, Reproductive hazard

WHMIS Classification : B2: Flammable liquid
D1B: Toxic Material Causing Immediate and Serious Toxic Effects
D2A: Very Toxic Material Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Methanol	67-56-1	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
Chronic Health Hazard
Acute Health Hazard

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

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

67-56-1	Methanol	4.5672 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

67-56-1	Methanol	4.5672 %
108-10-1	Methyl isobutyl ketone	0.9705 %
75-07-0	Acetaldehyde	0.0923 %
110-54-3	Hexane	0.0041 %
108-88-3	Toluene	0.0004 %
100-41-4	Ethylbenzene	0.0826 PPM
71-43-2	Benzene	0.0826 PPM

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

75-07-0	Acetaldehyde	0.0923 %

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

64-17-5	Ethanol	92.4015 %
67-56-1	Methanol	4.5672 %
141-78-6	Ethyl acetate	1.2338 %
108-10-1	Methyl isobutyl ketone	0.9705 %
75-07-0	Acetaldehyde	0.0923 %
110-82-7	Cyclohexane	0.0644 %
108-88-3	Toluene	0.0004 %
100-41-4	Ethylbenzene	0.0826 PPM
71-43-2	Benzene	0.0826 PPM

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

75-07-0	Acetaldehyde	0.0923 %
110-82-7	Cyclohexane	0.0644 %
108-88-3	Toluene	0.0004 %
100-41-4	Ethylbenzene	0.0826 PPM
71-43-2	Benzene	0.0826 PPM

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

75-07-0	Acetaldehyde	0.0923 %
110-82-7	Cyclohexane	0.0644 %
108-88-3	Toluene	0.0004 %
100-41-4	Ethylbenzene	0.0826 PPM
71-43-2	Benzene	0.0826 PPM

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

64-17-5	Ethanol	90 - 100 %
67-56-1	Methanol	1 - 5 %
141-78-6	Ethyl acetate	1 - 5 %
75-07-0	Acetaldehyde	0 - 0.1 %

Pennsylvania Right To Know

64-17-5	Ethanol	90 - 100 %
7732-18-5	Water	5 - 10 %
67-56-1	Methanol	1 - 5 %
141-78-6	Ethyl acetate	1 - 5 %
108-10-1	Methyl isobutyl ketone	0.1 - 1 %
75-07-0	Acetaldehyde	0 - 0.1 %
110-82-7	Cyclohexane	0 - 0.1 %

New Jersey Right To Know

64-17-5	Ethanol	90 - 100 %
7732-18-5	Water	5 - 10 %
67-56-1	Methanol	1 - 5 %
141-78-6	Ethyl acetate	1 - 5 %

California Prop 65

WARNING! This product contains a chemical known to the State of California to cause cancer.

108-10-1	Methyl isobutyl ketone
75-07-0	Acetaldehyde
100-41-4	Ethylbenzene
71-43-2	Benzene

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

67-56-1	Methanol
108-88-3	Toluene
71-43-2	Benzene

The components of this product are reported in the following inventories:

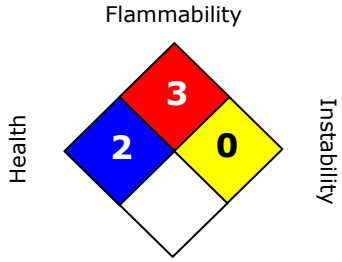
United States TSCA Inventory	:	y (positive listing) (On TSCA Inven-

		tory)
Canadian Domestic Substances List (DSL)	:	y (positive listing) (All components of this product are on the Canadian DSL.)
Australia Inventory of Chemical Substances (AICS)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
New Zealand. Inventory of Chemical Substances	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Japan. ENCS - Existing and New Chemical Substances Inventory	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Korea. Korean Existing Chemicals Inventory (KECI)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
China. Inventory of Existing Chemical Substances in China (IECSC)	:	y (positive listing) (On the inventory, or in compliance with the inventory)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by NEXEO™ Solutions EHS Product Safety Department (1-855-429-2661) MSDS@nexeosolutions.com.

Legecy MSDS: R0004289

Material number:
16045950, 743915, 622762, 160166, 117872, 160518, 132622, 132015, 131724, 117199, 145990, 20467

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level

EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philipines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Compositon, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50		Lethal Concentration 50%	