WELLINGTON
LABORATORIES
SAFETY DATA SHEET

Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)

Scantec Nordic AB

Chemwatch Hazard Alert Code: **4**

Version No: **14.16**
Safety Data Sheet (Conforms to Annex II of REACH (1907/2006) - Regulation 2020/878)

Issue Date: **29/12/2022**
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SECTION 1 Identification of the substance / mixture and of the company / undertaking

1.1. Product Identifier

Product name	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)
Chemical Name	Not Applicable
Synonyms	Methyl alcohol (methanol),Methyl hydrate (methanol),Methylol (methanol)
Proper shipping name	METHANOL
Chemical formula	Not Applicable
Other means of identification	Not Available

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

Relevant identified uses	This product is a solution of organic compound(s) in methanol for laboratory use only (see section 3). This material should only be used by those persons trained in the safe handling of hazardous chemicals. Please refer to the Certificate of Analysis (CofA) for further product information. Wellington Laboratories Inc. believes the information stated below to be reliable and accurate. This data is solely for reference purposes. Wellington Laboratories Inc. shall not be held liable for damages resulting from handling or contact with the above stated material.
Uses advised against	No specific uses advised against are identified.

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**Scantec Nordic AB**	**Greyhound Chromatography & Allied Chemicals**	**Wellington Laboratories**
Address	Fabriksstraket 29 Jonsered 433 76 Sweden	6 Kelvin Park, Birkenhead, Merseyside CH41 1LT United Kingdom	345 Southgate Drive Guelph Ontario N1G 3M5 Canada
Telephone	+031 336 90 00	+44-0-151 649 4000	+1 519 822 2436
Fax	Not Available	+44-0-151 649 4001	+1 519 822 2849
Website	www.scantecnordic.se	www.greyhoundchrom.com	http://well-labs.com/
Email	info@scantecnordic.se	info@greyhoundchrom.com	orders@well-labs.com

1.4. Emergency telephone number

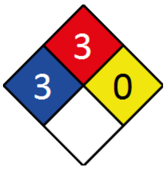
Association / Organisation	**CANUTEC**
Emergency telephone numbers	+1 888 226 8832 (North American)
Other emergency telephone numbers	+1 613 996 6666 (International)

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

Considered a hazardous mixture according to Reg. (EC) No 1272/2008 and their amendments. Classified as Dangerous Goods for transport purposes.

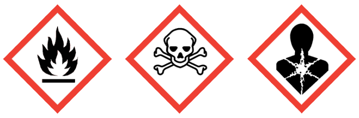
NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments [1]	H225 - Flammable Liquids Category 2, H301 - Acute Toxicity (Oral) Category 3, H311 - Acute Toxicity (Dermal) Category 3, H331 - Acute Toxicity (Inhalation) Category 3, H370 - Specific Target Organ Toxicity - Single Exposure Category 1
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*

2.2. Label elements

Hazard pictogram(s)	

Signal word	**Danger**

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs.

Supplementary statement(s)

Not Applicable

CLP classification (additional)

Not Applicable

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and protective clothing.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor/physician/first aider.
P330	Rinse mouth.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

2.3. Other hazards

Cumulative effects may result following exposure*.

May produce discomfort of the eyes and skin*.

Vapours potentially cause drowsiness and dizziness*.

HARMFUL-May cause lung damage if swallowed.

methanol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)

SECTION 3 Composition / information on ingredients

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1. CAS No **2.EC No** **3.Index No** **4.REACH No**	**%[weight]**	**Name**	**Classification according to regulation (EC) No 1272/2008 [CLP] and amendments**	**SCL / M-Factor**	**Nanoform Particle Characteristics**
1. 67-56-1 2.200-659-6 3.603-001-00-X 4.Not Available	99.994	methanol *	Flammable Liquids Category 2, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Acute Toxicity (Inhalation) Category 3, Specific Target Organ Toxicity - Single Exposure Category 1; H225, H301, H311, H331, H370 [2]	* STOT SE 1; H370: C ≥ 10 % | STOT SE 2; H371: 3 % ≤ C < 10 %	Not Available
1. 27619-93-8* 2.Not Available 3.Not Available 4.Not Available	0.006	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate	Not Classified [1]	Not Available	Not Available

Legend:	*1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*

SECTION 4 First aid measures

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ‣ Immediately hold eyelids apart and flush the eye continuously with running water. ‣ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ‣ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ‣ Transport to hospital or doctor without delay. ‣ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ‣ Quickly but gently, wipe material off skin with a dry, clean cloth. ‣ Immediately remove all contaminated clothing, including footwear. ‣ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ‣ Transport to hospital, or doctor.
Inhalation	‣ If fumes or combustion products are inhaled remove from contaminated area. ‣ Lay patient down. Keep warm and rested. ‣ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ‣ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ‣ Transport to hospital, or doctor, without delay.

Ingestion	If swallowed do **NOT** induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice. Avoid giving milk or oils. Avoid giving alcohol. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

For acute and short term repeated exposures to methanol:

· Toxicity results from accumulation of formaldehyde/formic acid.

· Clinical signs are usually limited to CNS, eyes and GI tract Severe metabolic acidosis may produce dyspnea and profound systemic effects which may become intractable. All symptomatic patients should have arterial pH measured. Evaluate airway, breathing and circulation.

· Stabilise obtunded patients by giving naloxone, glucose and thiamine.

· Decontaminate with Ipecac or lavage for patients presenting 2 hours post-ingestion. Charcoal does not absorb well; the usefulness of cathartic is not established.

· Forced diuresis is not effective; haemodialysis is recommended where peak methanol levels exceed 50 mg/dL (this correlates with serum bicarbonate levels below 18 mEq/L).

· Ethanol, maintained at levels between 100 and 150 mg/dL, inhibits formation of toxic metabolites and may be indicated when peak methanol levels exceed 20 mg/dL. An intravenous solution of ethanol in D5W is optimal.

· Folate, as leucovorin, may increase the oxidative removal of formic acid. 4-methylpyrazole may be an effective adjunct in the treatment. 8.Phenytoin may be preferable to diazepam for controlling seizure.

[Ellenhorn Barceloux: Medical Toxicology]

Methanol poisoning can be treated with fomepizole, or if unavailable, ethanol. Both drugs act to reduce the action of alcohol dehydrogenase on methanol by means of competitive inhibition. Ethanol, the active ingredient in alcoholic beverages, acts as a competitive inhibitor by more effectively binding and saturating the alcohol dehydrogenase enzyme in the liver, thus blocking the binding of methanol. Methanol is excreted by the kidneys without being converted into the very toxic metabolites formaldehyde and formic acid. Alcohol dehydrogenase instead enzymatically converts ethanol to acetaldehyde, a much less toxic organic molecule. Additional treatment may include sodium bicarbonate for metabolic acidosis, and hemodialysis or hemodiafiltration to remove methanol and formate from the blood. Folinic acid or folic acid is also administered to enhance the metabolism of formate.

BIOLOGICAL EXPOSURE INDEX - BEI

Determinant	Index	Sampling Time	Comment
1. Methanol in urine	15 mg/l	End of shift	B, NS
2. Formic acid in urine	80 mg/gm creatinine	Before the shift at end of workweek	B, NS

B: Background levels occur in specimens collected from subjects **NOT** exposed.

NS: Non-specific determinant - observed following exposure to other materials.

SECTION 5 Firefighting measures

5.1. Extinguishing media

Water may be an ineffective extinguishing media for methanol fires; static explosions are reported for aqueous solutions as dilute as 30%. Water may be used to cool containers.

- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. May be violently or explosively reactive. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Consider evacuation (or protect in place).

	‣ Fight fire from a safe distance, with adequate cover. ‣ If safe, switch off electrical equipment until vapour fire hazard removed. ‣ Use water delivered as a fine spray to control fire and cool adjacent area. ‣ Avoid spraying water onto liquid pools. ‣ **DO NOT** approach containers suspected to be hot. ‣ Cool fire exposed containers with water spray from a protected location. ‣ If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	‣ Liquid and vapour are highly flammable. ‣ Severe fire hazard when exposed to heat, flame and/or oxidisers. ‣ Vapour may travel a considerable distance to source of ignition. ‣ Heating may cause expansion or decomposition leading to violent rupture of containers. ‣ On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include: , carbon dioxide (CO_2) , formaldehyde , other pyrolysis products typical of burning organic material.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	‣ Remove all ignition sources. ‣ Clean up all spills immediately. ‣ Avoid breathing vapours and contact with skin and eyes. ‣ Control personal contact with the substance, by using protective equipment. ‣ Contain and absorb small quantities with vermiculite or other absorbent material. ‣ Wipe up. ‣ Collect residues in a flammable waste container.
Major Spills	‣ Clear area of personnel and move upwind. ‣ Alert Fire Brigade and tell them location and nature of hazard. ‣ May be violently or explosively reactive. ‣ Wear full body protective clothing with breathing apparatus. ‣ Prevent, by any means available, spillage from entering drains or water course. ‣ Consider evacuation (or protect in place). ‣ No smoking, naked lights or ignition sources. ‣ Increase ventilation. ‣ Stop leak if safe to do so. ‣ Water spray or fog may be used to disperse vapour. ‣ Contain or absorb spill with sand, earth or vermiculite. ‣ Use only spark-free shovels and explosion proof equipment. ‣ Collect recoverable product into labelled containers for recycling. ‣ Collect solid residues and seal in labelled drums for disposal. ‣ Wash area and prevent runoff into drains. ‣ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. ‣ If contamination of drains or waterways occurs, advise emergency services.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Safe handling	‣ Containers, even those that have been emptied, may contain explosive vapours. ‣ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ‣ Avoid all personal contact, including inhalation. ‣ Wear protective clothing when risk of exposure occurs. ‣ Use in a well-ventilated area. ‣ Prevent concentration in hollows and sumps.

	‣ **DO NOT** enter confined spaces until atmosphere has been checked. ‣ Avoid smoking, naked lights, heat or ignition sources. ‣ When handling, **DO NOT** eat, drink or smoke. ‣ Vapour may ignite on pumping or pouring due to static electricity. ‣ **DO NOT** use plastic buckets. ‣ Earth and secure metal containers when dispensing or pouring product. ‣ Use spark-free tools when handling. ‣ Avoid contact with incompatible materials. ‣ Keep containers securely sealed. ‣ Avoid physical damage to containers. ‣ Always wash hands with soap and water after handling. ‣ Work clothes should be laundered separately. ‣ Use good occupational work practice. ‣ Observe manufacturer's storage and handling recommendations contained within this SDS. ‣ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. ‣ **DO NOT** allow clothing wet with material to stay in contact with skin
Fire and explosion protection	See section 5
Other information	‣ Store in original containers in approved flame-proof area. ‣ No smoking, naked lights, heat or ignition sources. ‣ **DO NOT** store in pits, depression, basement or areas where vapours may be trapped. ‣ Keep containers securely sealed. ‣ Store away from incompatible materials in a cool, dry well ventilated area. ‣ Protect containers against physical damage and check regularly for leaks. ‣ Observe manufacturer's storage and handling recommendations contained within this MSDS. ‣ Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions. ‣ Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. ‣ For containers, or container linings use mild steel, stainless steel. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FMK), which have been specifically tested for compatibility with this product. ‣ For container linings, use amine-adduct cured epoxy paint. ‣ For seals and gaskets use: graphite, PTFE, Viton A, Viton B. ‣ Unsuitable material: Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials. ‣ Do not cut, drill, grind, weld or perform similar operations on or near containers. Containers, even those that have been emptied, can contain explosive vapours.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	‣ Glass container is suitable for laboratory quantities ‣ Packing as supplied by manufacturer. ‣ Plastic containers may only be used if approved for flammable liquid. ‣ Check that containers are clearly labelled and free from leaks. ‣ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. ‣ For materials with a viscosity of at least 2680 cSt. (23 deg. C) ‣ For manufactured product having a viscosity of at least 250 cSt. (23 deg. C) ‣ Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used. ‣ Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages ‣ In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.
Storage incompatibility	Methanol: ‣ reacts violently with strong oxidisers, acetyl bromide, alkyl aluminium salts, beryllium dihydride, bromine, chromic acid, 1-chloro-3,3-difluoro-2-methoxycyclopropene, cyanuric chloride, diethylzinc, isophthaloyl chloride, nitric acid, perchloric acid, potassium-tert-butoxide, potassium sulfur diimide, Raney nickel catalysts, 2,4,6-trichlorotriazine, triethylaluminium, 1,3,3-trifluoro-2-methoxycyclopropene ‣ is incompatible with strong acids, strong caustics, alkaline earth and alkali metals, aliphatic amines, acetaldehyde, benzoyl peroxide, 1,3-bis(di-n-cyclopentadienyl iron)-2-propen-1-one, calcium carbide, chloroform, chromic anhydride, chromium trioxide, dialkylzinc, dichlorine oxide, dichloromethane, ethylene oxide, hypochlorous acid, isocyanates, isopropyl chlorocarbonate, lithium tetrahydroaluminate, magnesium, methyl azide, nitrogen dioxide, palladium, pentafluoroguanidine, perchloryl fluoride, phosphorus pentasulfide, phosphorus trioxide, potassium, tangerine oil, triisobutylaluminium ‣ mixtures with lead perchlorate, sodium hypochlorite are explosive

	- may react with metallic aluminium at high temperatures - slowly corrodes lead and aluminium - may generate electrostatic charges, due to low conductivity, on flow or agitation - attacks some plastics, rubber and coatings. Static induced flash fires have happened when filling plastic containers with methanol / water solutions with as low as 30% methanol content Alcohols - are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents. - reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen - react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium - should not be heated above 49 deg. C. when in contact with aluminium equipment - Avoid storage with reducing agents.
Hazard categories in accordance with Regulation (EC) No 1272/2008	H2: Acute Toxic, H3: STOT Specific Target Organ Toxicity – Single Exposure, P5a: Flammable Liquids, P5b: Flammable Liquids, P5c: Flammable Liquids
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	H2 Lower- / Upper-tier requirements: 50 / 200 H3 Lower- / Upper-tier requirements: 50 / 200 P5a Lower- / Upper-tier requirements: 10 / 50 P5b Lower- / Upper-tier requirements: 50 / 200 P5c Lower- / Upper-tier requirements: 5 000 / 50 000

7.3. Specific end use(s)

See section 1.2

SECTION 8 Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
methanol	Dermal 1 601 mg/kg bw/day (Systemic, Chronic) Inhalation 11.67 mg/m³ (Systemic, Chronic) Inhalation 20 mg/m³ (Local, Chronic) Dermal 20 mg/kg bw/day (Systemic, Acute) Inhalation 130 mg/m³ (Systemic, Acute) Inhalation 40 mg/m³ (Local, Acute) *Dermal 4 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 2.9 mg/m³ (Systemic, Chronic) ** *Oral 1 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 26 mg/m³ (Local, Chronic) ** *Dermal 4 mg/kg bw/day (Systemic, Acute) ** *Inhalation 26 mg/m³ (Systemic, Acute) ** *Oral 4 mg/kg bw/day (Systemic, Acute) ** *Inhalation 26 mg/m³ (Local, Acute) **	Not Available

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	methanol	Methanol	200 ppm / 260 mg/m3	Not Available	Not Available	Skin

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
methanol	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
methanol	6,000 ppm	Not Available

Ingredient	Original IDLH	Revised IDLH
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate	Not Available	Not Available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.
For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.
Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.
· Adequate ventilation is typically taken to be that which limits the average concentration to no more than 25% of the LEL within the building, room or enclosure containing the dangerous substance.
· Ventilation for plant and machinery is normally considered adequate if it limits the average concentration of any dangerous substance that might potentially be present to no more than 25% of the LEL. However, an increase up to a maximum 50% LEL can be acceptable where additional safeguards are provided to prevent the formation of a hazardous explosive atmosphere. For example, gas detectors linked to emergency shutdown of the process might be used together with maintaining or increasing the exhaust ventilation on solvent evaporating ovens and gas turbine enclosures.
· Temporary exhaust ventilation systems may be provided for non-routine higher-risk activities, such as cleaning, repair or maintenance in tanks or other confined spaces or in an emergency after a release. The work procedures for such activities should be carefully considered.. The atmosphere should be continuously monitored to ensure that ventilation is adequate and the area remains safe. Where workers will enter the space, the ventilation should ensure that the concentration of the dangerous substance does not exceed 10% of the LEL (irrespective of the provision of suitable breathing apparatus)

8.2.2. Individual protection measures, such as personal protective equipment

Eye and face protection

- Safety glasses with side shields.
- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should

	be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].
Skin protection	See Hand protection below
Hands/feet protection	- Wear chemical protective gloves, e.g. PVC. - Wear safety footwear or safety gumboots, e.g. Rubber The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical 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. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: · frequency and duration of contact, · chemical resistance of glove material, · glove thickness and · dexterity Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent). · When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Body protection	See Other protection below
Other protection	- Overalls. - PVC Apron. - PVC protective suit may be required if exposure severe. - Eyewash unit. - Ensure there is ready access to a safety shower. - Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. - For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). - Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
***"*Forsberg Clothing Performance Index".**
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)

Material	CPI
BUTYL	A

Respiratory protection

Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator

BUTYL/NEOPRENE	A
PE/EVAL/PE	A
PVDC/PE/PVDC	A
SARANEX-23	A
SARANEX-23 2-PLY	A
TEFLON	A
VITON/NEOPRENE	A
NEOPRENE	B
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
PVA	C
PVC	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

up to 5 x ES	AX-AUS / Class 1	-	AX-PAPR-AUS / Class 1
up to 25 x ES	Air-line*	AX-2	AX-PAPR-2
up to 50 x ES	-	AX-3	-
50+ x ES	-	Air-line**	-

* - Continuous-flow; ** - Continuous-flow or positive pressure demand
^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	**Maximum gas/vapour concentration present in air p.p.m. (by volume)**	**Half-face Respirator**	**Full-Face Respirator**
up to 10	1000	AX-AUS / Class 1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+		-	Airline**

** - Continuous-flow or positive pressure demand.
A(All classes) = Organic vapours, B AUS or B1 = Acid gases, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 deg C)

8.2.3. Environmental exposure controls

See section 12

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Not Available

Physical state	Liquid	**Relative density (Water = 1)**	0.791
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	455

pH (as supplied)	Not Applicable	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	-98	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	64.7	**Molecular weight (g/mol)**	32.04
Flash point (°C)	12	**Taste**	Not Available
Evaporation rate	4.1 BuAC = 1	**Explosive properties**	Not Available
Flammability	HIGHLY FLAMMABLE.	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	31	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	6	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	13	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Applicable
Vapour density (Air = 1)	1.11	**VOC g/L**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	▸ Static induced flash fires have happened when filling plastic containers with methanol / water solutions with as low as 30% methanol content. ▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Minor but regular methanol exposures may effect the central nervous system, optic nerves and retinae. Symptoms may be delayed, with headache, fatigue, nausea, blurring of vision and double vision. Continued or severe exposures may cause damage to optic nerves, which may become severe with permanent visual impairment even blindness resulting. **WARNING**: Methanol is only slowly eliminated from the body and should be regarded as a cumulative poison which cannot be made non-harmful [*CCINFO*]
Ingestion	**Toxic effects** may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual. Methanol may produce a burning or painful sensation in the mouth, throat, chest, and stomach. This may be accompanied by nausea, vomiting, headache, dizziness, shortness of breath, weakness, fatigue, leg cramps, restlessness, confusion, drunken behaviour, visual disturbance, drowsiness, coma and death. 60-200 ml of methanol is a fatal dose for most adults with as little as 10 ml producing blindness. In massive overdose, liver, kidney, heart and muscle injury have been described. Even ingestion of small amounts of methanol is enough to seriously damage parts of the central nervous system, leading to permanent brain and/or nerve problems. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may

	result. (ICSC13733)
Skin Contact	Skin contact with the material may produce toxic effects; systemic effects may result following absorption. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. There is strong evidence to suggest that this material, on a single contact with skin, can cause serious, irreversible damage of organs. There is some evidence to suggest that the material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye	Methanol is a mild to moderate eye irritant. High vapor concentration or liquid contact with eyes causes irritation, tearing, and burning. Direct contact of the eye with ethanol may cause immediate stinging and burning with reflex closure of the lid and tearing, transient injury of the corneal epithelium and hyperaemia of the conjunctiva. There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.
Chronic	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Long-term exposure to methanol vapour, at concentrations exceeding 3000 ppm, may produce cumulative effects characterised by gastrointestinal disturbances (nausea, vomiting), headache, ringing in the ears, insomnia, trembling, unsteady gait, vertigo, conjunctivitis and clouded or double vision. Liver and/or kidney injury may also result.

Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
methanol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 15800 mg/kg[2]	Eye (rabbit): 100 mg/24h-moderate
	Inhalation(Rat) LC50: 64000 ppm4h[2]	Eye (rabbit): 40 mg-moderate
	Oral (Rat) LD50: 5628 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
		Skin (rabbit): 20 mg/24 h-moderate
		Skin: no adverse effect observed (not irritating)[1]
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*	

METHANOL	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Acute Toxicity	✓	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✗	**Reproductivity**	✗
Serious Eye Damage/Irritation	✗	**STOT - Single Exposure**	✓
Respiratory or Skin sensitisation	✗	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

11.2.2. Other information

See Section 11.1

SECTION 12 Ecological information

12.1. Toxicity

	Endpoint	Test Duration (hr)	Species	Value	Source
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2FTS)	Not Available	Not Available	Not Available	Not Available	Not Available
methanol	EC50	48h	Crustacea	>10000mg/l	2
	EC50	96h	Algae or other aquatic plants	14.11-20.623mg/l	4
	LC50	96h	Fish	290mg/l	2
	NOEC(ECx)	720h	Fish	0.007mg/L	4
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate	Not Available	Not Available	Not Available	Not Available	Not Available

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

For Methanol: Log Kow: -0.82 to -0.66; Koc: 1; Henry s Law Constant: 4.55x10-6 atm-cu m/mole; Vapor Pressure: 127 mm Hg; BCF: < 10.
Atmospheric Fate: Methanol is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase methanol is broken down in the atmosphere by reactions with hydroxyl radicals; the half-life for this reaction in air is estimated to be 17 days.
Terrestrial Fate: Methanol is expected to have very high mobility in soil. Evaporation of methanol from moist/dry soil surfaces is expected to be an important fate process. Biological breakdown in soil is expected to be an important fate process for methanol based on half-lives of 1 day, in sandy silt loam, and 3.2 days in sandy loam.
Aquatic Fate: Methanol is not expected to adsorb to suspended solids and sediment and the substance mixes in water. The substance is expected to evaporate from water surfaces with half-lives, for a model river, of 3 days, and 35 days, for a model lake. Concentration of the substance in aquatic organisms is expected to be low. Breakdown by water and sunlight are not expected to be an important environmental fate processes. The substance is expected to be broken down by microorganisms in water.
Ecotoxicity: Methanol is non-toxic to fish, including fathead minnow, rainbow trout, bluegill sunfish, and guppy. The substance is also non-toxic to aquatic invertebrates, including Daphnia pulex water fleas, brine and brown shrimp. The substances are non-toxic to shellfish, including mussels, marine bacterium, including Photobacterium phosphoreum, and the protozoan Tetrahymena pyriformis.

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
methanol	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
methanol	LOW (BCF = 10)

12.4. Mobility in soil

Ingredient	Mobility
methanol	HIGH (KOC = 1)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

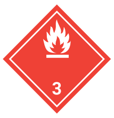
SECTION 13 Disposal considerations

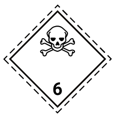
13.1. Waste treatment methods

Product / Packaging disposal	‣ Containers may still present a chemical hazard/ danger when empty. ‣ Return to supplier for reuse/ recycling if possible. Otherwise: ‣ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ‣ Where possible retain label warnings and SDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: ‣ Reduction ‣ Reuse ‣ Recycling ‣ Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. ‣ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ‣ It may be necessary to collect all wash water for treatment before disposal. ‣ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ‣ Where in doubt contact the responsible authority. ‣ Recycle wherever possible. ‣ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. ‣ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material). ‣ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 Transport information

Labels Required





Marine Pollutant	NO

Land transport (ADR-RID)

14.1. **UN number or ID number**	1230	
14.2. **UN proper shipping name**	METHANOL	
14.3. **Transport hazard class(es)**	Class	3
	Subsidiary Hazard	6.1
14.4. **Packing group**	II	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Hazard identification (Kemler)	336
	Classification code	FT1

	Hazard Label: 3 +6.1 Special provisions: 279 Limited quantity: 1 L Tunnel Restriction Code: D/E

Air transport (ICAO-IATA / DGR)

14.1. **UN number**	1230
14.2. **UN proper shipping name**	Methanol
14.3. **Transport hazard class(es)**	ICAO/IATA Class: 3 ICAO / IATA Subsidiary Hazard: 6.1 ERG Code: 3L
14.4. **Packing group**	II
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: A113 Cargo Only Packing Instructions: 364 Cargo Only Maximum Qty / Pack: 60 L Passenger and Cargo Packing Instructions: 352 Passenger and Cargo Maximum Qty / Pack: 1 L Passenger and Cargo Limited Quantity Packing Instructions: Y341 Passenger and Cargo Limited Maximum Qty / Pack: 1 L

Sea transport (IMDG-Code / GGVSee)

14.1. **UN number**	1230
14.2. **UN proper shipping name**	METHANOL
14.3. **Transport hazard class(es)**	IMDG Class: 3 IMDG Subsidiary Hazard: 6.1
14.4. **Packing group**	II
14.5 **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	EMS Number: F-E, S-D Special provisions: 279 Limited Quantities: 1 L

Inland waterways transport (ADN)

14.1. **UN number**	1230
14.2. **UN proper shipping name**	METHANOL
14.3. **Transport hazard class(es)**	3 | 6.1
14.4. **Packing group**	II
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Classification code: FT1 Special provisions: 279; 802 Limited quantity: 1 L Equipment required: PP, EP, EX, TOX, A Fire cones number: 2

14.7. Maritime transport in bulk according to IMO instruments

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
methanol	Not Available
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
methanol	Not Available
Sodium 1H,1H,2H,2H-perfluorohexane sulfonate	Not Available

SECTION 15 Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

methanol is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Europe EC Inventory
European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
Sweden Swedish Chemicals Agency (KEMI) Restricted Substances Database

Sodium 1H,1H,2H,2H-perfluorohexane sulfonate is found on the following regulatory lists

Not Applicable

Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Information according to 2012/18/EU (Seveso III):

Seveso Category	H2, H3, P5a, P5b, P5c

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Canada - DSL	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Canada - NDSL	No (methanol; Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
China - IECSC	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Europe - EINEC / ELINCS / NLP	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Japan - ENCS	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Korea - KECI	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
New Zealand - NZIoC	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)

National Inventory	Status
Philippines - PICCS	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
USA - TSCA	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Taiwan - TCSI	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Mexico - INSQ	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Vietnam - NCI	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Russia - FBEPH	No (Sodium 1H,1H,2H,2H-perfluorohexane sulfonate)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16 Other information

Revision Date	29/12/2022
Initial Date	19/12/2012

Full text Risk and Hazard codes

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

- PC－TWA: Permissible Concentration-Time Weighted Average
- PC－STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit。
- IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration

- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act

- TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory
- FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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