MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name: Windshield Wash Fluid
Product Code: WWS2 **Chemical Type: Solvent Blend**
Product Use: A blend of methanol and water to be used as windshield washer base.

WARNING! Harmful if swallowed! May be irritating to eyes!

Manufacturer: Chemical Solvents Inc.
Address: 3751 Jennings Rd.
Cleveland, Ohio 44109

Revision Date: 2/5/2008
Emergency: Chemtrec (800) 424-9300
Phone: (800) 362-0693

2. Composition / Information on Ingredients

Component & CAS Number	Weight %	OSHA hazard category:
METHANOL 67-56-1	25-35	Hazardous
Water 1330-20-7	65-75	Hazardous

3. Hazards Identification

Emergency Overview:

- Combustible liquid and vapor.
- Prolonged and repeated skin contact can cause death or blindness.
- May be fatal or cause blindness if swallowed.
- Causes eye irritation.
- Harmful if inhaled.
- May cause respiratory tract and skin irritation.
- Possible birth defect hazard. Contains material which may cause birth defects based on animal data.
- Vapor is heavier than air and can travel considerable distance to a source of ignition and flashback.

Product Description
Appearance: Clear, colorless mobile liquid.
Odor: Mild alcohol odor.

Potential health effects

Routes of exposure: Skin, eyes, inhalation, ingestion.

Immediate effects:

Skin: May cause skin irritation. Prolonged or repeated contact may dry skin and cause irritation. May be harmful if absorbed through skin. Symptoms of exposure may include: Drying, cracking or inflammation of skin. Central nervous system depression with headache, stupor, uncoordinated or strange behavior or unconsciousness. Prolonged and /or repeated skin contact with methanol-soaked material has produced toxic effects including vision effects and death.

Eyes: Exposure to vapors and liquid Causes eye irritation. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision. Eye injury which may persist for several days.

Inhalation: Symptoms of exposure may include: Central nervous system depression with nausea, dizziness, headache, stupor, uncoordinated or strange behavior or unconsciousness. Adverse effects on vision. May cause respiratory tract irritation.

Ingestion: May be fatal is swallowed. Symptoms of exposure may include: A small amount of Methanol (usually two or more ounces) can cause mental sluggishness, nausea and vomiting leading to severe illness, and may produce adverse effects on vision with possible blindness or death if treatment is not received.

Reproductive: May cause adverse reproductive effects based on animal data.

Carcinogenic: No evidence of carcinogenicity.

Mutagenic: Does not show mutatgenic potential in most in vitro tests.

Teratogenic: May cause birth defects based on animal data.

Target Organ Effects:

- Overexposure (prolonged or repeated exposure) may cause:
  Central nervous system depression
  Injury to the eyes
  Drying of the skin
  Local irritation at the site of exposure

Medical Conditions which may be Aggravated by Exposure:

Significant exposure to this chemical may adversely affect people with acute or chronic disease of the:
Skin
Eyes
Central nervous system
Digestive tract

For further information, see:

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4. First Aid Measures

Skin:
Immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Destroy contaminated shoes.

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately.

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:
Get medical attention immediately. Call a physician or contact a poison control center. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

5. Fire Fighting Measures

NFPA: Health: 1 Flammability: 2 Reactivity: 0

Flammable properties
Flash point (test method): 110F (Closed Cup)

Flammable limits in air, % by volume:

Upper: N/A
Lower: N/A
Products of combustion: Carbon Monoxide.

Extinguishing Media: Use alcohol type aqueous film forming foam for large fires. Use CO_2 or dry chemical for small fires.

Fire Fighting Environmental Concerns Vapors and combustion gases can be controlled using a water fog stream. Thoroughly decontaminate bunker gear and other fire-fighting equipment before re-use.

Fire Fighting Instructions Water may be ineffective but should be used to cool fire-exposed structures and vessels. Use water spray for large fires. Water spray can be used to reduce the intensity of flames and to dilute spills to a non-flammable mixture. Keep personnel removed from and upwind of fire. If potential for exposure to vapors or products of combustion exists, wear full fire fighting turnout gear and NIOSH approved self-contained breathing apparatus. Oxidizing chemicals may accelerate the burning

rate in a fire situation. Vapor is heavier than air and can travel considerable distance to a source of ignition and flashback.

6. Accidental Release Measures

Spill or Leak Instructions
Eliminate ignition sources. See Section 8 for appropriate personal protective equipment. Contain spill with dikes of soil or nonflammable absorbent to minimize contaminated area. Water fog stream may reduce vapors. If fire potential exists, blanket spill with alcohol type aqueous film-forming foam or use water fog stream to disperse vapors. Avoid run-off into storm sewers and ditches leading to waterways. If required, notify state and local authorities. Place leaking containers in well-ventilated area. Clean up small spills by using a nonflammable absorbent or flushing sparingly with water. Contain larger spills with nonflammable diking or absorbent. Clean up by vacuuming or sweeping.

Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:
150,000 lbs. of the material as is, based on a Reportable Quantity of 5,000 lbs. for methanol.

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Isolate for 800 meters or 0.5 miles in all directions if tank, rail car, or tank truck in involved in fire. Evacuate downwind areas as conditions warrant to prevent exposure and to allow vapors or fumes to dissipate. Spills may expose downwind areas to toxic or flammable concentrations over considerable distances in some cases.

7. Handling and Storage

Handling:

Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before re-use. Destroy contaminated leather clothing.

This product may generate a static charge. Ground/bond equipment when transferring material to prevent static accumulation. Electrical equipment and circuits in all storage and handling must conform to requirements of National Electric Code (Article 500 and 501) for hazardous location.

Storage:

Keep all containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor.
Do not store with incompatible materials. See Section 10. Stability and Reactivity.

8. Exposure Controls / Personal Protection

Engineering Controls:

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Protective Equipment

A safety shower and eyebath should be readily available.

Skin Protection:

Wear impervious clothing and gloves to prevent contact. Butyl rubber is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Eye/face protection:

Wear chemical goggles when there is a reasonable chance of eye contact.

Respiratory Protection:

Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level. To estimate an occupational exposure level see Section 3, Section 8 and Section 11.

For concentrations > 1 and < 100 times the occupational exposure level: Use Type C full facepiece supplied-air respirator operated in positive-pressure or continuous-flow mode.

For concentrations > 100 times the occupational exposure level or greater than the IDLH level or unknown concentrations (such as in emergencies): Use self-contained breathing apparatus with full facepiece in positive-pressure mode or Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system.

For escape: Use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.

Exposure guidelines

Component & CAS Number	Weight %	ACGIH TWA	ACGIH STEL	ACGIH CEILING	OSHA TWA	OSHA STEL	OSHA CEILING
METHANOL 67-56-1	25-35	200 PPM	250 PPM	-	200 PPM	-	-
Water 1330-20-7	65-75	-	-	-	-	-	-

Component & CAS Number	Weight %	1990 NIOSH IDLH (Recognized by OSHA)	1994 NIOSH IDLH
METHANOL 67-56-1	25-35	25,000 PPM	6000 PPM

9. Physical and Chemical Properties

Appearance:	Clear, colorless mobile liquid.
Odor:	Mild alcohol odor.
Vapor Pressure:	96 mm Hg at 20 C based on Methanol
Vapor Density (Air=1 @ 20 C):	1.11 based on Methanol
Boiling Point (760 mmHgA):	64.6 C (148 F) Lowest boiling material
Freezing Point:	-20 F)
Solubility in Water @ 20 C:	100%
Specific Gravity:	0.86

10. Stability and Reactivity

Stability: Stable.

Conditions to Avoid: Avoid heat , flames, sparks, and other sources of ignition.

Incompatibility: Keep away from sulfuric and other strong inorganic acids, aluminum or lead (including equipment made of these metals), and oxidizing agents such as peroxides, nitric acid, perchloric acid or chromium trioxide.

Hazardous combustion or decomposition products: Thermal decomposition products may include oxides of carbon.

Hazardous Polymerization: Hazardous polymerization will not occur.

11. Toxicological Information

Component & CAS Number	Weight %	Component Toxicological Information:
METHANOL 67-56-1	25-35	**Acute Exposure:** Toxicity information on the solution is generally not available. Information on the solution components is listed next. **Oral LD50:** 6.2-12.9g/kg (rats); practically nontoxic to animals. However, based on human exposure reports, a small amount (usually two or more ounces) can cause mental sluggishness, nausea and vomiting leading to severe illness, and may produce adverse effects on vision with possible blindness or death if treatment is not received. **Inhalation LC50:** 64000ppm (rats,4 hrs.); practically nontoxic to animals. Based on human exposure reports, levels substantially above the TLV cause stupor, headache, nausea, dizziness, unconsciousness and may produce adverse effects on vision. **Skin:** Irritating to rabbit skin. Severity depends on the quantity administered and exposure period and is related to the defatting properties of methanol; slightly toxic to animals (minimum lethal dose, monkeys: 1.6g/kg; LD50, rabbits:16g/kg). Based on human exposure reports, prolonged and repeated skin contact with methanol-soaked material has produced toxic effects including vision effects and death.

Component & CAS Number	Weight %	Component Toxicological Information:
		Eye: Severely irritating to rabbit eyes. **Mutagenicity:** Methanol - Not genotoxic in most in vitro assays. Not genotoxic in vivo in mice exposed via inhalation up to 4000ppm (6hrs./day for 5 days) and subsequently examined for cytogenetic effects. **Carcinogenicity:** Methanol - Inhalation-Not carcinogenic in lifetime inhalation studies (reported in limited detail) in rats and mice at concentrations of 10-1000ppm. Dermal-Not carcinogenic in mice exposed dermally to 0.02ml/day, 2 days/week over a lifetime in a study of limited quality. **Reproductive/Developmental Effects:** Methanol - In an inhalation developmental toxicity study, rats were exposed 6hrs./day to 5000, 10000 or 20000ppm vapors. A significant teratogenic response was seen at 20000ppm. Fetotoxicity was noted at 10000ppm, but not at 5000ppm. In an inhalation developmental toxicity study, mice were exposed 7hrs./day to 2000, 5000 or 10000ppm vapors. Methanol caused developmental toxicity at all levels. Oral administration of methanol via gavage at 1.3, 2.6 or 5.2 ml/kg to rats resulted in developmental toxicity at all levels. **Repeated Exposure:** Methanol - Inhalation exposure (6hrs./day; 5days/week) of monkeys to vapor concentrations of 500, 2000 or 5000ppm for 4 weeks did not result in any treatment-related effects. Monkeys exposed to methanol vapors of 10, 100 or 1000ppm for 22hrs./day for up to 2.5yrs. showed changes in the liver, kidney and nervous system at 1000ppm (limited details reported). Rats exposed by oral gavage to 100, 500 or 2500mg/kg/day methanol for 90days exhibited only effects on organ weight (brain) and serum enzymes (SGPT,AP) at the high dose.

12. Ecological Information

Component & CAS Number	Weight %	Component Ecological Information:
METHANOL 67-56-1	25-35	**Ecotoxicity:** Toxicity information on the solution is generally not available. Information on solution components is listed next. Methanol exhibits low acute toxicity to aquatic species. The 24-, 48- and 96-hr. LC50 values for various fish species (bluegill sunfish, fathead minnows, rainbow trout, goldfish, carp, bleak, creek chub) are in the range 1700-28100ppm. The 18-, 24- and 48-hr. EC50 values for the water flea (daphnids) are in the range 10000-24500ppm. The 18-hr. LC50 for grass shrimp is 21900ppm and the 24-hr. LC50 for brine shrimp is >10000ppm. Cell multiplication was inhibited after 8 days exposure to 8000ppm and 530ppm in the green algae (Scenedesmus quadricauda) and blue-green algae (Anacystis aeruginosa), respectively. **Environmental Fate:** The ability of animals and microorganisms to rapidly biodegrade methanol coupled with its low n-octanol/water partition coefficient is expected to lead to its rapid removal if released into the environment. **Degradation:** Under aerobic conditions methanol is readily biodegradable. The 5-Day BOD values are 48-83% of COD. Biodegradation also occurs under anaerobic conditions, e.g. 83-91% degradation in a marine water/sediment system after 3 days. Atmospheric photochemical degradation (half-life) is estimated to be be 17.8days. Volatilization half-lives of 4.8days and 51.7days have been estimated for a model river and a model pond, respectively. **Bioaccumulation:** The log n-octanol/water partition coefficient for methanol is -0.77. This suggests that methanol has low potential to bioaccumulate.

13. Disposal Considerations

Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste. See Section 9 - Physical and Chemical Properties.

14. Transport Information

US Department of Transportation

Shipping name: METHANOL Solution

Hazard class: 3 (Flammable Liquid)
UN/NA Number: UN1230
Packing Group: III
Emergency Response Guide: 131

15. Regulatory Information

U.S. Federal Regulations

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

METHANOL 67-56-1
Pennsylvania Listed
New York Listed
New Jersey Listed
Illinois Listed
Massachusetts Listed
Rhode Island Listed

U.S. REGULATORY RULES

TSCA Inventory:
We certify that all components are either on the TSCA inventory or qualify for an exemption.

METHANOL 67-56-1
EPCRA (SARA Title III) Section 313 Listed

Environmental Regulations

METHANOL 67-56-1
CERCLA Hazardous Substances Data- Listed

SARA 311:
Acute health: Yes
Chronic health: Yes
Fire: Yes
Sudden release of pressure: No
Reactive: No

16. Other Information

Hazard ratings This information is intended solely for the use of individuals trained in the NFPA and/or HMIS systems.

NFPA: Health: 1 Flammability: 2Reactivity: 0

HMIS: Health: 2 Flammability: 2Reactivity: 0

Note:

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