MATERIAL SAFETY DATA SHEET

Section 1. Company Identification and Product Information			
Product Name or Identity:	**50% Ethanol Solution**		
Manufacturer's Name:	**Neogen Corporation**	**Emergency Phone No.:**	517/372-9200
	620 Lesher Place	**Fax No.:**	517/372-0108
	Lansing, MI 48912	**e-mail:**	foodsafety@neogen.com
Date Prepared or Revised: July 2009		**Chemtrec: (800) 424-9300** **Outside US and Canada: (703) 527-3887**	

Section 2. Composition / Information on Hazardous Ingredients			
This product is a mixture of the substances listed below with the addition of nonhazardous materials.			
Hazardous Components, Specific Chemical Identity:	**CAS-No.**	**%**	**Hazard Symbol**
Ethanol	64-17-5	50%	T (Toxic), F (Flammable)

Section 3. Health Hazard Identification	
Health Hazards: *(Acute and Chronic)*	**Information pertaining to particular dangers for man and environment.** **Ethanol:** R 11 / 23 / 24 / 25 / 39 / 23 / 24 / 25, Highly flammable. Toxic by inhalation, in contact with skin and if swallowed, can be fatal.

Section 4. First Aid Measures	
Emergency / First Aid Procedures:	**Ingestion:** If swallowed, seek medical attention immediately. Induce vomiting as directed by medical personnel. Show physician product label. Never give anything by mouth to an unconscious person.
	Inhalation: If inhaled, supply fresh air or oxygen. Seek medical attention immediately. If not breathing, apply artificial respiration. If breathing is difficult, give oxygen.
	Eye Contact: Rinse opened eye for at least 15 minutes under running water, lifting lower and upper eyelids occasionally. Seek medical attention immediately.
	Skin Contact: Remove contaminated clothing. Immediately wash with plenty of soap and water for at least 15 minutes. Seek medical attention. Wash clothing before reuse.

Section 5. Fire and Explosion Hazard Data	
Flash Point (Method Used): Closed Cup 24°C (Ethanol)	**Flammable Limits**: LEL – 3.3% (Ethanol), UEL – 19% (Ethanol)
Extinguishing Media: Use alcohol foam, dry chemical, or carbon dioxide. Water may be ineffective.	
Protective Equipment: Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Moderate explosion hazard and dangerous fire hazard when exposed to heat, sparks, or flames. Sensitive to static discharge. Firefighters should wear protective equipment and self-contained breathing apparatus.	
Unusual Fire and Explosion Hazards: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus. Water spray can be used to extinguish fires and cool fire-exposed containers.	

Section 6. Accidental Release Measures
Personal Precautions: Avoid breathing vapors, mist or gas. Ventilate area. Shut off all sources of ignition. Consider need for evacuation. Wear suitable protective clothing, gloves, and eye protection, along with self-containing breathing apparatus, rubber boots, and rubber gloves. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental Precautions: Prevent dispersion of material. Avoid discharge into drains, water courses or into the ground. Inform authorities if large amounts are involved. Do not flush into sewer.
Clean-up Methods: Contain spillage, and then collect with non-combustible absorbent material and place in container for disposal according to local, regional and national regulations. Contact safety officer if questions arise.

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Section 7. Handling and Storage

Handling: Protect against physical damage. Ensure good ventilation / exhaustion and do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Do not use if skin is cut or scratched. No smoking.

Storage: Keep container tightly closed, away from heat, sparks, flame and incompatible material. Storage area should be cool and dry. Containers of this material may be hazardous when empty since they retain product residues.

Other Precautions: Keep respiratory protective device available.

Section 8. Exposure Controls / Personal Protection

Components with limit values that require monitoring: Ethanol (67-17-5)

OSHA–PEL: 1000 ppm TWA, (Ethanol)	**TLV:** 1000 ppm (Ethanol)

Respiratory Protection: Respiratory protection must be used if air contamination exceeds acceptable level. In the US, if respirators are used a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Use a NIOSH-approved respirator (See 29 CRF 1910.134, respiratory protection standard). Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Additional Information: Personal Protection listed below are general requirements for laboratory personnel. Avoid contact with eyes, skin, and clothing. In the event of use above flash point, use in closed systems. Do not use compressed air by filling, discharging or handling the product. Proper ventilation required. Safety shower and eye bath. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment:
Keep away from food, beverages, and feed.
Wash hands before and after entering laboratory.

Breathing Equipment: In case of exposure limit is exceeded, use a chemical fume hood or a NIOSH/MSHA-approved respiratory.

Hand Protection: Use chemical resistant gloves.

Eye Protection: Wear safety glasses.

Body Protection: Wear lab coat or other protective work clothing.

Section 9. Physical and Chemical Properties

Appearance and Odor: Liquid, colorless, with alcohol odor.

Boiling Point: 73.3°C

Melting Point: Not determined

Specific Gravity: 0.93 – 0.96

Section 10. Stability and Reactivity

Stability:	Unstable		
	Stable	X	Conditions to Avoid: Avoid heat, sources of ignition, moisture, shock, and friction.

Incompatibility *(Materials to Avoid)***:** Incompatible with oxidizing agents, silver salts, acid chlorides and reducing agents.

Hazardous Decomposition or Byproducts: Carbon dioxide and Carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:	May Occur		Conditions to Avoid: Heat, sparks, sources of ignition and incompatible materials.
	Will Not Occur	X	

Section 11. Toxicological Information

LD/LC50 values that are relevant:
LD_{50}: ORL-RAT, 7060 mg/kg (Ethanol)

Carcinogenicity Classification:
IARC (International Agency for Research on Cancer) – Not Listed
NTP (National Toxicology Program) - Not Listed

Eye: Produces irritation. Splashes may cause temporary pain and blurred vision.
Ingestion: May cause headaches, gastritis, intoxication, blindness and, in acute cases, death.
Inhalation: Harmful if inhaled. Exposure may cause irritation to the mucous membranes of the upper respiratory tract. Prolonged exposures to high concentrations may cause drowsiness, loss of appetite and inability to concentrate.
Skin: Causes skin irritation, cracking or flaking due to dehydration and defatting action.
Chronic: Prolonged or repeated skin contact may cause dermatitis and may affect the nervous system. May affect liver, blood, reproductive system. Continued ingestion of small amounts could result in blindness.
Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders, eye problems, or impaired liver or kidney function may be more susceptible to the effects of the substance.
Toxicological information: Ethanol has been linked to birth defects in humans. Ethanol has been linked to cancer in humans.

Section 12. Ecological Information

Ecotoxicity Tests: LC_{50}: Fish, 96 hours, > 100 mg/L (Ethanol). This material is not expected to be toxic to aquatic life.

Section 13. Disposal Considerations

Waste Disposal Method: Dispose in accordance with all applicable federal (40 CFR 261.3), state, and local environmental regulations.
RCRA P-Series: None listed.
RCRA U-Series: CAS# 67-17-5: waste number U154; (Ignitable waste)
Contact a licensed professional waste disposal service to dispose of this material if questions arise.

Container Information: Do not remove labels from containers until they have been cleaned.

Section 14. Transport Information

DOT Regulations:
Hazard Class: 3
Identification Number: UN 1170
Packing Group: II
Proper Shipping Name: Ethyl Alcohol Solution

Land Transport ADR/RID (cross-border):
Hazard Class: 3
Identification Number: UN 1170
Packing Group: II
Proper Shipping Name: Ethyl Alcohol Solution

Maritime Transport IMDG:
Hazard Class: 3
Identification Number: UN 1170
Packing Group: II
Proper Shipping Name: Ethyl Alcohol Solution

Air Transport ICAO-TI and IATA-DGR:
Hazard Class: 3
Identification Number: UN 1170
Packing Group: II
Proper Shipping Name: Ethyl Alcohol Solution

Section 15. Regulatory Information

EU Regulations, Hazard Symbol(s):

Ethanol: T (Toxic), F (Flammable)

Regulatory Information, continued:

Risk Phrases:

Ethanol: R 11 / 23 / 24 / 25 / 39, Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Toxic, danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

Safety Phrases:

Ethanol: S 7 / 16 / 36 / 37 / 45, Keep container tightly closed. Keep away from sources of ignition, no smoking. Wear suitable protective clothing and gloves. In case of accident or if you become ill, seek medical advice immediately (show product label).

Section 16. Other Information

This document is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. Neogen Corporation shall not be held liable for any damage resulting from handling or from contact with the above product. These suggestions should not be confused with state, municipal or insurance requirements, and constitute NO WARRANTY.