



## MATERIAL SAFETY DATA SHEET

Revision Date: 10/13/2010

MSDSANSI/ANSI/EN/150000100315/Version 2.6

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	FutureSol GlySol
<b>Product Identification Number(s)</b>	70040, E700400S, P700400S, P70040HB, P70040P2, P70040B2, P70040HP
<b>Manufacturer/Supplier</b>	FutureFuel Chemical Company Gap Road 2800 Batesville, AR 72503 US
<b>MSDS Prepared by</b>	Product Safety
<b>Chemical Name</b>	glycerol formal
<b>Synonym(s)</b>	70040
<b>Molecular Formula</b>	C4H8O3
<b>Molecular Weight</b>	104
<b>Product Use</b>	industrial chemical
<b>OSHA Status</b>	hazardous

For product information telephone FutureFuel Chemical Company 870-698-3000, 8:00 am - 4:00 pm, Central.

Emergency telephone CHEMTREC: US 800-424-9300, international 703-527-3887

### 2. COMPOSITION INFORMATION ON INGREDIENTS

*(Typical composition is given, and it may vary. A certificate of analysis can be provided, if available.)*

<u>Weight %</u>	<u>Component</u>	<u>CAS Registry No.</u>
>99%	Glycerol Formal	68442-91-1
<1%	glycerin	56-81-5
<0.5%	water	7732-18-5
<0.05%	formaldehyde	50-00-0

### 3. HAZARDS IDENTIFICATION

CAUTION!

AT ELEVATED TEMPERATURES, VAPOR MAY CAUSE IRRITATION OF EYES AND RESPIRATORY TRACT  
MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS - SUCH AS BIRTH DEFECTS, MISCARRIAGES, OR INFERTILITY BASED ON ANIMAL DATA

**HMIS® Hazard Ratings:** Health - 1\*, Flammability -1, Chemical Reactivity - 0

*HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.*

### 4. FIRST-AID MEASURES

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**Inhalation:** Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

**Eyes:** Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

**Skin:** Wash off with soap and water. Get medical attention if symptoms occur.

**Ingestion:** Seek medical advice.

### 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** water spray, carbon dioxide, dry chemical, alcohol foam

**Special Fire-Fighting Procedures:** Wear self-contained breathing apparatus and protective clothing.

**Hazardous Combustion Products:** carbon dioxide, carbon monoxide, formaldehyde

**Unusual Fire and Explosion Hazards:** none

### 6. ACCIDENTAL RELEASE MEASURES

Wear appropriate personal protective equipment. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

**For Large Spills:** Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

### 7. HANDLING AND STORAGE

**Personal Precautionary Measures:** Avoid breathing vapor from heated material. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wash thoroughly after handling.

**Prevention of Fire and Explosion:** Keep from contact with oxidizing materials.

**Storage:** Keep container closed.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

*Country specific exposure limits have not been established or are not applicable unless listed below.*

#### FORMALDEHYDE

US. ACGIH Threshold Limit Values

Ceiling Limit Value: 0.3 ppm,

US. NIOSH: Pocket Guide to Chemical Hazards

Recommended exposure limit (REL): 0.016 ppm,

#### FORMALIN (AS FORMALDEHYDE), as formaldehyde

US. NIOSH: Pocket Guide to Chemical Hazards

Recommended exposure limit (REL): 0.016 ppm,

#### FORMALDEHYDE

US. NIOSH: Pocket Guide to Chemical Hazards

Ceiling Limit Value and Time Period (if specified): 0.1 ppm, 15-min

#### FORMALIN (AS FORMALDEHYDE), as formaldehyde

US. NIOSH: Pocket Guide to Chemical Hazards

Ceiling Limit Value and Time Period (if specified): 0.1 ppm, 15-min

#### FORMALDEHYDE

US. OSHA Specifically Regulated Substances (29 C FR 1910.1001-1050)

Reference:

US. OSHA Specifically Regulated Substances (29 C FR 1910.1001-1050)

Time Weighted Average (TWA): 0.75 ppm,

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- US. OSHA Specifically Regulated Substances (29 C FR 1910.1001-1050)  
Short Term Exposure Limit (STEL): 2 ppm,
- US. OSHA Specifically Regulated Substances (29 C FR 1910.1001-1050)  
OSHA Action level: 0.5 ppm,
- US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants  
Time Weighted Average (TWA) Permissible Exposure Limit (PEL): 0.75 ppm,
- US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants  
Short Term Exposure Limit (STEL): 2 ppm,
- US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants  
TWA Action Level: 0.5 ppm,

**Ventilation:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory and eye protection may be needed in special circumstances; such as poorly ventilated spaces, heating, evaporation of liquids from large surfaces, spraying of mists, mechanical generation of dusts, drying of solids, etc.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. 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.

**Eye Protection:** Wear safety glasses with side shields (or goggles).

**Skin Protection:** It is a good industrial hygiene practice to minimize skin contact. For operations where prolonged or repeated skin contact may occur, chemical-resistant gloves should be worn. Contact health and safety professional or manufacturer for specific information.

**Recommended Decontamination Facilities:** eye bath, washing facilities

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical Form:** liquid

**Color:** colorless

**Odor:** none

**Boiling point/range** 191 - 195 °C

**Solubility in Water:** complete

**Flash Point:** 99 °C (closed cup)

**Thermal Decomposition Temperature:** No exotherm

### 10. STABILITY AND REACTIVITY

**Stability:** Stable.

**Incompatibility:** Material reacts with strong oxidizing agents, acids.

**Hazardous Polymerization:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION

**General:** May cause adverse reproductive effects such as birth defects, miscarriages, or infertility based on animal data.

*Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.*

Oral LD-50:(rat)

9,120 mg/kg

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### 12. ECOLOGICAL INFORMATION

*Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.*

This material has not been tested for environmental effects.

### 13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied.

### 14. TRANSPORT INFORMATION

***Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.***

#### DOT (USA)

Class not regulated

#### Sea - IMDG (International Maritime Dangerous Goods)

Class not regulated

#### Air - ICAO (International Civil Aviation Organization)

Class not regulated

### 15. REGULATORY INFORMATION

#### SARA 311-312 Hazard Classification(s):

immediate (acute) health hazard

delayed (chronic) health hazard

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SARA 313: none, unless listed below

Carcinogenicity Classification (components present at 0.1% or more): none, unless listed below

TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

### 16. OTHER INFORMATION

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*The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment.*

*Highlighted areas indicate new or changed information.*