



MATERIAL SAFETY DATA SHEET

Revision Date: 03/08/2010

MSDSANSI/ANSI/EN/150000100752/Version 1.0

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	FutureSol(R) DHM
Product Identification Number(s)	70104, E701040S
Manufacturer/Supplier	FutureFuel Chemical Company Gap Road 2800 Batesville, AR 72503 US
MSDS Prepared by	Product Safety and Health
Chemical Name	not applicable
Synonym(s)	Dihexoxymethane
Molecular Formula	not applicable
Molecular Weight	not applicable
Product Use	research and development sample
OSHA Status	hazardousassumed hazardous; not fully investigated

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>
>98%	dihexoxymethane	not assigned
<2%	1-hexanol	111-27-3
<0.5%	water	7732-18-5
<0.05%	formaldehyde	50-00-0

3. HAZARDS IDENTIFICATION

WARNING!

CAUSES SKIN AND EYE IRRITATION

MIST OR VAPOR IRRITATING TO EYES AND RESPIRATORY TRACT

HIGH VAPOR CONCENTRATIONS MAY CAUSE DROWSINESS

THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED

HMIS® Hazard Ratings: Health - 2, 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. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

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

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

Ingestion: Seek medical advice.

5. FIRE FIGHTING MEASURES

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

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

Hazardous Combustion Products: carbon dioxide, carbon monoxide

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 mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. 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)

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Reference:

- US. OSHA Specifically Regulated Substances (29 C FR 1910.1001-1050)
Time Weighted Average (TWA): 0.75 ppm,
- 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. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

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). Wear a full-face respirator, if needed.

Skin Protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. 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: clear

Odor: oily

Specific Gravity: 0.829 (25 °C)

Boiling Point: 130 °C 26 hPa

Solubility in Water: negligible

Flash Point: 107 °C (Pensky-Martens closed cup)

Thermal Decomposition Temperature: 320 °C ; 27.6 (DSC) Weak exotherm

10. STABILITY AND REACTIVITY

Stability: Stable. Stable.

Incompatibility: Material reacts with strong oxidizing agents strong oxidizing agents.

Hazardous Polymerization: Will not occur. Will not occur.

11. TOXICOLOGICAL INFORMATION

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

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.

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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.

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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

Class not regulated

Sea - IMDG (International Maritime Dangerous Goods)

Class not regulated not regulated

Air - ICAO (International Civil Aviation Organization)

Class not regulated not regulated

15. REGULATORY INFORMATION

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This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status: controlled controlled

WHMIS (Canada) Hazard Classification: D/2/B D/2/B

SARA 311-312 Hazard Classification(s):

immediate (acute) health hazard

immediate (acute) health hazard

SARA 313: none, unless listed below

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

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TSCA (US Toxic Substances Control Act): One or more components of this product are not listed on the TSCA inventory. In the USA, its use is restricted to research and development purposes only. This product must be handled by or under the direct supervision of technically qualified persons. One or more components of this product are not listed on the TSCA inventory. In the USA, its use is restricted to research and development purposes only. This product must be handled by or under the direct supervision of technically qualified persons.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): One or more components of this product are not listed on the DSL. In Canada, its use is restricted to research and development purposes only. One or more components of this product are not listed on the DSL. In Canada, its use is restricted to research and development purposes only.

EINECS (European Inventory of Existing Commercial Chemical Substances): One or more components or reactants of this product are not listed on EINECS. In the European Union, its use is restricted to research and development purposes only. One or more components or reactants of this product are not listed on EINECS. In the European Union, its use is restricted to research and development purposes only.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): One or more components of this product are not listed on AICS. In Australia, its use is restricted to research and development purposes only. One or more components of this product are not listed on AICS. In Australia, its use is restricted to research and development purposes only.

MITI (Japanese Handbook of Existing and New Chemical Substances): One or more components or reactants of this product are not listed in the Handbook. In Japan, its use is restricted to research and development purposes only. One or more components or reactants of this product are not listed in the Handbook. In Japan, its use is restricted to research and development purposes only.

ECL (Korean Toxic Substances Control Act): One or more components of this product are not listed on the Korean inventory. In Korea, its use is restricted to research and development purposes only. One or more components of this product are not listed on the Korean inventory. In Korea, its use is restricted to research and development purposes only.

Philippines Inventory (PICCS) : One or more components of this product are not listed on the Philippine inventory. One or more components of this product are not listed on the Philippine inventory.

Inventory of Existing Chemical Substances in China: One or more components of this product are not listed on the Inventory of Existing Chemical Substances in China (IECSC). One or more components of this product are not listed on the Inventory of Existing Chemical Substances in China (IECSC).

16. OTHER INFORMATION

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.

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