

SUMMARY GUIDE

Liquid SunMate® FIPS

Foam-In-Place Seating

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ATTENTION

The Liquid SunMate® FIPS system may be used only by those who have completed the required training in safe product handling and use. Training consists of watching the FIPS Instructional Video AND reading the FIPS Instruction Manual. Understanding of the training material must be verified with Dynamic Systems, Inc. (DSI) by the user before the product will be shipped. A Verification Statement of Training form may be requested or downloaded from our website. Complete and fax, mail or e-mail the form to DSI. Once we have your statement on file, you may order FIPS as often as you like.

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Cold Weather Heating Instructions

NEVER HEAT CHEMICALS IN A MICROWAVE OR DIRECTLY ON A STOVE OR HOT PLATE.

Unpack your FIPS Bowl or Bag Pack and inspect the containers carefully. Shipping and storage during the winter months may expose the product to temperatures below 50°F. The FIPS chemicals are formulated to be used at room temperature (between 60°-75°F). If the container feels cold to the touch, or the chemicals appear thick, cloudy or crystallized, the chemical reaction will be slow and incomplete. The chemicals may be brought back to the proper consistency using a simple hot water bath. Follow the instructions below to ensure a good foam rise.

Bowl Pack

Heating the Polyol

- First, remove the foil safety seal underneath the lid and loosely place the lid back on the container.
- Place the Polyol container in a pan of water preheated to 120-150°F and let it sit for 15-20 minutes.
- Remove the container from the bath and let it cool to room temperature (60-75°F).*
- Once the Polyol has cooled, use the wooden mixing stick to scrape any sediment from the bottom and sides of the container, then thoroughly mix the Polyol with an electric beater for 2 minutes.



Remove the foil safety seal and loosen the lid of the container when heating the Polyol or Iso.

Heating the Iso

- First, remove the foil safety seal underneath the lid, and loosely place the lid back on the container.
- Place the Iso container in a pan of water preheated to 120-150°F, and let it sit for 15-20 minutes until the Iso appears the same color and consistency as apple juice. To avoid exposure to possible fumes, **do not exceed 150°F**.
- Remove the container from the bath and let it cool to room temperature (60-75°F).*

*** You must let the chemicals return to room temperature before using. If the chemicals are too warm, the chemical reaction will be excessively fast and hot during the molding process.**

Bag Pack

You cannot visually check the Iso or Polyol inside the foil bag, so it is a good idea to follow the Cold Weather Heating instructions any time the Bag Pack has been exposed to temperatures below 50°F.

Heating the Polyol

- Place the Polyol section of the Bag Pack in a pan of water preheated to 120-150°F, and let it sit for 15-20 minutes until the bag feels soft and pliable.
- Take the Bag Pack out of the bath and let it cool to room temperature (60-75°F).*
- Before use, massage and knead the Polyol section of the bag for about 2 minutes until the consistency feels uniform.

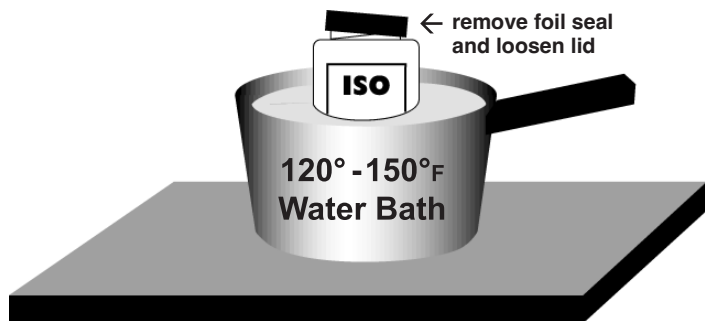


Place the Iso or Polyol section of the Bag Pack in a hot water bath to melt any crystals.

Heating the Iso

- Place the Iso section of the Bag Pack in a pan of preheated water (120-150°F), and let it sit for 10-15 minutes. **Do not exceed 150°F**.
- Take the Bag Pack out of the bath and let it cool to room temperature (60-75°F).*

DO



Reminders

- Turn off all heat sources before submerging containers in water.
- Never heat chemicals in a microwave or directly on a stove or hot plate.
- After heating, let all chemicals return to room temperature before use.

DON'T



How to Dispose of Expired Chemicals

A "Use By" date is printed on each box of Liquid SunMate® FIPS. If the product has passed this date before you are able to use it, you have the following options:

1. Order replacement Iso (Bowl Pack only). The product will still be usable with new Iso.
2. Return unused chemicals to Dynamic Systems for disposal. Shipping charges apply.
3. Use the following method to dispose of the chemicals. (Comply with any local, state, and federal laws and regulations which may be more stringent.)

Bowl Packaging Disposal Method

To dispose of the Iso and Catalyst:

- Pour an absorbent material such as cat litter or sand into the bottom of two double-bagged trash bags.
- Pour the contents of the Iso bottle into the trash bag.
- Pour the contents of the Catalyst bottle into the trash bag. Avoid breathing any resulting outgassing fumes.
- The trash bag and empty bottles may then be disposed of as household trash. Polyol, which is derived primarily from plants, may be thrown away as originally packaged in the container.

Bag Packaging Disposal Method

To dispose of the Iso and Catalyst:

- Pour an absorbent material such as cat litter or sand into the bottom of two double-bagged trash bags.
- Carefully cut open the end of the Iso section of the foil Bag Pack, and pour the contents into the trash bag.
- Carefully cut open the Catalyst section, and pour the contents into the trash bag. Avoid breathing any resulting outgassing fumes.
- The trash bag and remainder of the foil FIPS Bag Pack (containing only Polyol) may then be disposed of as household trash.

Always wear disposable gloves and eye protection when disposing of the chemicals.

Molding a Custom Seat Cushion Using the FIPS Bag Pack

The Liquid SunMate® FIPS Bag Pack ingredients are contained in 3 sections of the foil bag separated by plastic clips. They are mixed by removing the clips in order and manually kneading and shaking the bag.

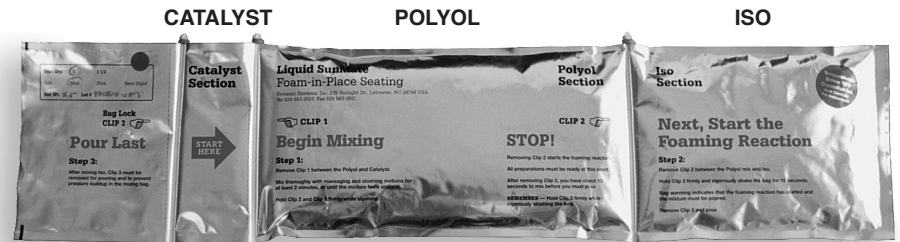
ATTENTION

This is a summary guide only and does not give complete instructions. First-time users must read the *Liquid SunMate® FIPS Instruction Manual* before conducting a pour.

ONE FULL BAG UNIT INCLUDES:

- Polyol, 3 lb section
- Catalyst, 1 oz section*
- Iso, 1½ lb section*
- FIPS Summary Guide

*Catalyst and Iso amounts vary by formulation.



INSPECT THE BAG FOR LEAKS

The day before the pour, inspect the Bag Pack carefully for leaks. If the Polyol or Iso sections feel cold or lumpy, follow the cold weather heating instructions on page. 2.



- 1 PLACE MOLDING BAG IN CHAIR**
Place the base cushion(s) inside the molding bag and position the molding bag in the chair. Have a trash can nearby.



- 2 MIX POLYOL FOR 2 MINUTES**
Using kneading and shaking action, mix the Polyol section for at least 2 minutes to ensure any ingredients that have settled in storage are well-mixed into a uniform consistency.



- 3 REMOVE CLIP 1 TO ADD CATALYST**
Remove Clip 1 between the Catalyst and Polyol by removing the red end cap and pulling the white rubber tubing out of the c-clip.



- 7 POUR MIX INTO THE MOLDING BAG**
Lower the Bag Pack into the molding bag and pour the mixture onto the base cushion toward the front of the chair using a side-to-side motion. Squeeze any excess out of the bag and throw the empty Bag Pack into the trash can.



- 8 SPREAD MIXTURE EVENLY**
Working from the outside of the molding bag, quickly spread the liquid evenly across the seat. You can only manipulate the mixture while it is in liquid form. Once the foaming action begins, additional handling or movement causes the bubbles to break, and creates hard spots in the finished cushion.



- 9 SEAT CLIENT**
Quickly and carefully transfer the client onto the molding bag. **CAUTION:** Make sure the client's clothing does not shift to expose the skin during positioning.

The client must remain as still as possible for at least 5 minutes while the foam rises.

Make sure nothing is restricting the flow of the foam so it can rise and fill any voids.

Place a trash can under the bag opening to capture any overflow, and stand away from the bag opening to avoid breathing any escaping gases.

SHIPPING AND STORAGE

The U.S. Department of Transportation does not require the FIPS chemicals to carry a “hazardous” label when shipped. They may be safely handled, shipped, and stored using normal care.

The FIPS chemicals should be stored at room temperature (60-75°F). They are not volatile or readily flammable, however, they will react slowly with moisture. All containers should be sealed tightly until ready for use.

SAFETY TIPS

Take precautions to avoid accidental spills and splashes. During the molding process, wear protective clothing, remove jewelry, and cover the chair and the floor with drop cloths.

Clients should wear enough clothing to provide a sufficient barrier from the heat generated by the reacting chemicals. At minimum, a long-sleeve shirt and pants are recommended.

IMPORTANT

When molding a seat insert, the client can easily slide out of position before foaming starts. Gently hold the client in position by the knees or pelvis. If a larger abductor is needed, hold the knees apart slightly during the rise.

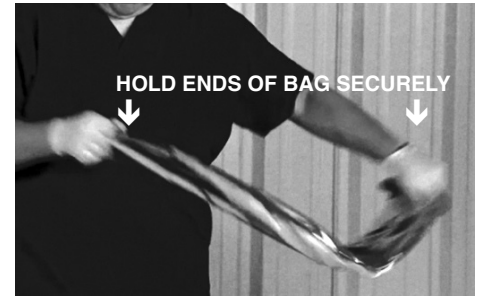
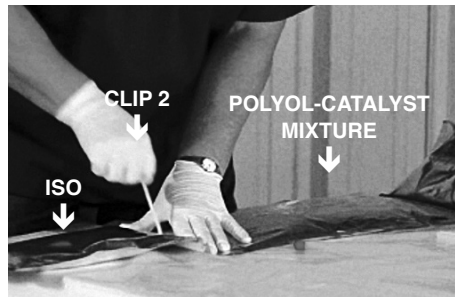
Do not wait until the foam starts rising to seat the client on the molding bag. This will cause the small bubbles to break and will create hard spots in the finished cushion.

**Temperatures
Below 50°F
Crystallize Iso
Heat Carefully
per Instructions**

SHELF LIFE

The Liquid SunMate® FIPS Bag Pack has a shelf-life of 9 months from the purchase date.

Each box is labelled with a sticker indicating the latest date by which the chemicals must be used.



4 MIX CATALYST FOR 30 SECONDS

Knead, shake and slosh the bag until the Polyol and Catalyst are uniformly mixed (about 30 seconds).

The Catalyst controls the temperature and speed of the reaction. No reaction will take place until the Iso is added in the next step. The process may be halted at this stage if necessary.

5 REMOVE CLIP 2 TO ADD ISO

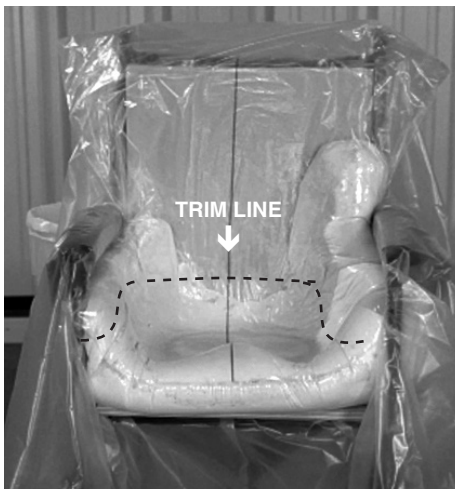
Remove Clip 2 between the Polyol-Catalyst mixture and the Iso. Be prepared to move quickly.

6 SHAKE BAG FOR 15 SECONDS

Holding the ends of the bag securely, vigorously shake the bag from side to side and up and down for 15 seconds until it begins to feel warm. Slight warmth indicates that the foaming process is about to start.

Remove the Bag Lock before pressure builds up in the bag and grip the bag opening, holding it closed as you move toward the molding bag to pour.

STOP! MAKE SURE EVERYONE IS READY BEFORE PROCEEDING.



10 RELEASE TRAPPED AIR

Just before the foam starts to set, release trapped air in the molding bag by poking small holes in the front corners of the bag or in the pommel area between the legs. Protect the client from any liquid that may escape through the hole.

A COMPLETE RISE

After about 10 minutes, the foaming process is complete and the cushion is ready to be trimmed and finished.

THE CURED FOAM SEAT CUSHION

Once the foam has cured, peel the molding bag from the foam. Mark and trim away any excess cushion material. Laminate, fabric finish and waterproof as needed.

Complete finishing details are included in the *Liquid SunMate® FIPS Instruction Manual* and on the FIPS Instructional Video.

Molding a Custom Back Cushion Using the FIPS Bowl Pack

The Liquid SunMate® Bowl Pack ingredients are packaged in 3 separate containers. They are combined in a bowl (included) in a specific order and mixed with electric beaters.



ATTENTION

This is a summary guide only and does not give complete instructions. First-time users must read the *Liquid SunMate® FIPS Instruction Manual* before conducting a pour.

ONE FULL BOWL UNIT INCLUDES:

- Polyol, 3 lb container
- Catalyst, 1 oz bottle*
- Iso, 1 ½ lb container*
- Mixing Bowl
- Mixing Stick
- FIPS Summary Guide

*Catalyst and Iso amounts vary by formulation.



6 ADD ISO. MIX FOR 15 SECONDS.

Place the mixer in the bowl. Turn it on high speed and quickly pour the Iso without splashing it onto the beaters. Mix for 15 seconds. The mixture should have a thin, aqueous consistency. Lift the mixer slightly above the liquid and briefly spin the beaters clean. Set the mixer aside.

SHELF LIFE

The Liquid SunMate® FIPS Bowl Pack has a shelf-life of 9 months from the purchase date. Each box is labelled with a sticker indicating the latest date by which the chemicals must be used.



1 INSPECT CONTAINERS

The day before the pour, unpack the chemicals and inspect them carefully. If the Polyol is cold and thick or the Iso is cloudy or crystallized, follow the cold weather heating instructions on pg. 2.



2 PLACE MOLDING BAG IN CHAIR

Place the base cushion inside the molding bag and position the molding bag in the chair. Place a trash can behind the chair, and seat the client.

(When making a Total insert, place the molding bag on top of the previously molded seat cushion, as shown in the above photo.)



7 POUR MIX INTO MOLDING BAG

Have the client lean forward, and lower the bowl into the molding bag. Pour the mixture quickly and evenly into the bottom of the bag. Set the bowl aside and have the client lean back into position. Adjust the molding bag to ensure it is not restricting the flow of the liquid foam.



8 LEAN CLIENT BACK

While the reaction is occurring, stand away from the bag opening to avoid breathing any escaping gases. Do not poke the foam as it rises as it will cause the tiny bubbles to break creating hard spots in the cushion.

Place a trash can beneath the opening of the bag to catch any overflow.

SHIPPING AND STORAGE

The U.S. Department of Transportation does not require the FIPS chemicals to carry a "hazardous" label when shipped. They may be safely handled, shipped, and stored using normal care.

The FIPS chemicals should be stored at room temperature (60-75°F). They are not volatile or readily flammable, however, they will react slowly with moisture. All containers should be sealed tightly until ready for use.

SAFETY TIPS

Take precautions to avoid accidental spills and splashes. During the molding process, wear protective clothing, remove jewelry, and cover the chair and the floor with drop cloths.

Clients should wear enough clothing to provide a sufficient barrier from the heat generated by the reacting chemicals. At minimum, a long-sleeve shirt and pants are recommended.

IMPORTANT

Chemicals must be mixed in the order specified.

Do not push on the molding bag while the foam is rising. This will cause the small bubbles to break and will create hard spots in the finished cushion.

Temperatures
Below 50°F
Crystallize Iso
Heat Carefully
per Instructions



3 POUR POLYOL INTO MIXING BOWL
With the Polyol at room temperature, pour it into the three-quart mixing bowl. Use the mixing stick to scrape **all remaining sediment** into the bowl. The older the unit, the thicker the Polyol will be.



4 MIX POLYOL FOR 2 MINUTES
Mix the Polyol on high speed for 2 minutes to obtain uniform consistency. Thorough mixing is key to creating a cushion with good cell structure and support properties.



5 ADD CATALYST. MIX FOR 30 SECONDS.
Add the Catalyst and mix for 30 seconds. The Catalyst controls the speed and heat of the reaction. The process may be halted at this stage if necessary. No reaction will take place until the Iso is added.
The foaming reaction occurs very quickly once the Iso is added to the mix.

STOP! MAKE SURE EVERYONE IS READY BEFORE PROCEEDING.



9 MONITOR FOAM RISE
Hold the client's shoulders or chest in position as the rising foam may push the client forward. The client must remain seated, as still as possible, for at least 5 minutes while the liquid rises and cures.



10 A COMPLETE RISE
After about 10 minutes, the foaming process is complete and the back cushion is ready to be trimmed and finished.



TRIM EXCESS FOAM
Once the foam has cured, peel the molding bag from the foam. Mark and trim away any excess cushion material. Laminate, fabric finish and waterproof as needed.

Complete finishing details are included in the *Liquid SunMate® FIPS Instruction Manual* and on the FIPS Instructional Video.

BOWL PACK WASTE DISPOSAL

To minimize the risk of spills, always replace the lids on the containers after the chemicals have been used. To clean up, pour any Catalyst residue into the Iso bottle. Add a small amount of water and mix gently. Loosely recap the Iso bottle to allow resulting gases to escape. Once the chemicals react, they become a solid waste which may be disposed of in the trash. **Do not pour Iso down the drain.** It reacts with water and will produce hard crystals that will clog the drain.

SAFETY DATA SHEET :

DABCO 33LV (FIPS CATALYST)

Ingredient of Liquid SunMate® Foam-in-Place Seating

Classified in accordance with 29 CFR 1910.1200.

Version 3.0. Revision Date: 09/28/2020. Print Date: 01/16/2024.

1. IDENTIFICATION

Product Identifier : DABCO 33LV (FIPS Catalyst)
Chemical name : Tertiary amine
Other means of identification : Polyurethane Catalyst
Manufacturer/Importer/Distributor Information
Company Name : Evonik Corporation
Nutrition & Care
P.O. Box 34628, Richmond, VA 23234
Telephone : +1 804-727-0700
Fax : +1 804-727-0845
E-mail : product-regulatory-services@evonik.com
Emergency Telephone Number
24-hour Health : +1-800-424-9300 (Chemtrec - US & Canada)
Emergency : 800-681-9531 (Chemtrec Mexico)
+1 703-527-3887 (Chemtrec World)

2. HAZARD(S) IDENTIFICATION

Hazard Classification

Physical Hazards

Flammable liquids : Category 4

Health Hazards

Skin Corrosion/Irritation : Category 2

Serious Eye Damage/Eye Irritation : Category 1

Label Elements

Hazard Symbol :



Signal Word : Danger.

Hazard Statement : Combustible liquid.
Causes skin irritation.
Causes serious eye damage.

Precautionary Statements

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling.

Response : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Immediately call a POISON CENTER/doctor. Specific treatment (see on this label). Take off contaminated clothing. In case of fire: Use ... to extinguish. (See Section 5.)

Storage : Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC) : None.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name : Tertiary amine

Mixtures

Chemical Identity	Common name and synonyms	CAS Number	Content in percent (%)*
1,4-Diazabicyclo(2.2.2)Octane		280-57-9	≥25% - <50%

*All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

The exact concentration has been withheld as a trade secret.

4. FIRST-AID MEASURES

Description of necessary first-aid measures

General Information : Immediately remove contaminated clothing.
Inhalation : Ensure supply of fresh air. Seek medical advice if symptoms occur.
Skin Contact : In case of contact with skin, wash off with soap and water. Consult a doctor if irritation persists.
Eye Contact : In case of contact with eyes, rinse thoroughly with plenty of water and seek medical advice.
Ingestion : Thoroughly clean the mouth with water. Seek medical advice if symptoms occur.
Personal Protection for First-aid Responders : Do not inhale explosion and/or combustion gases. Use self-contained breathing apparatus and wear protective suit.

Most important symptoms/effects, acute and delayed

Symptoms : Skin irritation. Serious eye damage/eye irritation.
 Hazards : No data available.

Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

5. FIREFIGHTING MEASURES**Suitable (and Unsuitable) Extinguishing Media**

Suitable Extinguishing Media : foam, carbon dioxide, dry powder, water spray
 Unsuitable Extinguishing Media : High volume water jet

Specific Hazards Arising from the Chemical

: In the event of fire the following can be released: – carbon dioxide, carbon monoxide – Nitrogen oxides (NOx). Under certain conditions of combustion, traces of other toxic substances cannot be excluded.

Special Protective Equipment and Precautions for Firefighters

Special fire-fighting procedures : Keep away from sources of ignition – No smoking. Take action to prevent static discharges. Vapours may form explosive mixtures with air. Cool endangered containers by water spray.
 Special protective equipment for fire-fighters : Do not inhale explosion and/or combustion gases. Use self-contained breathing apparatus and wear protective suit.

6. ACCIDENTAL RELEASE MEASURES**Personal Precautions, Protective Equipment, and Emergency Procedures**

: Use personal protective equipment. Keep away from sources of ignition. Ensure adequate ventilation.

Methods and Material for Containment and Cleaning Up

: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with the regulations.

Environmental Precautions

: Do not allow to enter drains or waterways. Do not discharge into the subsoil/soil.

7. HANDLING AND STORAGE**Handling****Technical Measures (e.g. local and general ventilation)**

: No data available.
 Safe Handling Advice : Provide good ventilation of working area (local exhaust ventilation if necessary). Avoid contact with skin and eyes. Do not inhale gases/vapours/aerosols.
 Contact Avoidance Measures : No data available.
 Hygiene Measures : Wash hands before breaks and at the end of workday. Do not eat, drink or smoke when working. Remove soiled or soaked clothing immediately.

Storage

Safe Storage Conditions : Keep containers tightly closed in a cool, well-ventilated place. Do not store near acids. Keep only in original container.
 Safe Packaging Materials : No data available.
 Storage Temperature : No data available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Control Parameters**

Occupational Exposure Limits : None of the components have assigned exposure limits.

Appropriate Engineering Controls

: No data available

Individual protection measures, such as personal protective equipment

Eye/face Protection : goggles
 Skin Protection
 Hand Protection : Material: Nitrile butyl rubber (NBR).
 Break-through time: 30 min.
 Skin and Body Protection : Protective clothing.
 Respiratory Protection : In case of formation of vapours/aerosols: Short term: filter apparatus, combination filter A-P2.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Physical state: Liquid.
 Form: Liquid.
 Color: Colorless, yellowish

Odor: Amine-like, of ammonia.**Odor threshold: No data available.****pH: 10-11 (40 g/l, 25°C) in Water****Freezing point: not measured.****Boiling point/range: 299°C (DSC)****Flash point: 86°C (DIN EN ISO 2719)****Evaporation rate: No data available.****Flammability (solid, gas): No data available.****Explosive limit - upper: not measured.****Explosive limit - lower: not measured.****Vapor pressure: not measured**

Relative vapor density: No data available.

Density: 1.027 g/cm³ (25°C) (DIN 51757)

Relative density: No data available.

Solubility in water: (21°C) Soluble.

Solubility (other): No data available.

Partition coefficient (n-octanol/water): not measured.

Self ignition temperature: No data available.

Decomposition temperature: No data available.

Kinematic viscosity: not measured.

Dynamic viscosity: 111 mPa.s (25°C, DIN 53015 (Höppler))

Other information

Explosive properties: No data available.

Oxidizing properties: Not oxidizing.

Minimum ignition temperature: not measured.

Metal corrosion: Not corrosive to metals.

10. STABILITY AND REACTIVITY

Reactivity	:	See section "Possibility of hazardous reactions" (below).
Chemical Stability	:	This product is stable under normal conditions.
Possibility of Hazardous Reactions	:	No hazardous reactions with proper storage and handling.
Conditions to Avoid	:	None with proper storage and handling.
Incompatible Materials	:	Reactive metals (e.g. sodium, calcium, zinc, etc.). Materials reactive with hydroxyl compounds. Dehydrating agents. Organic acids (i.e. acetic, citric acid, etc.). Mineral acid. Sodium hypochlorite. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Oxidizing agents.
Hazardous Decomposition Products	:	Ammonia. Nitrogen Oxides. Nitrogen oxide can react with water vapors to form corrosive nitric acid. Aldehydes.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation	:	If handled correctly, not a relevant route of exposure. Information on effects are given below.
Skin Contact	:	Relevant route of exposure. Information on effects are given below.
Eye Contact	:	Relevant route of exposure. Information on effects are given below.
Ingestion	:	If handled correctly, not a relevant route of exposure. Information on effects are given below.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	:	No data available.
Skin Contact	:	No data available.
Eye Contact	:	No data available.
Ingestion	:	No data available.

Information on Toxicological Effects

Acute Toxicity (list all possible routes of exposure)

Oral		
Product	:	Acute toxicity estimate: 2,121 mg/kg ATEmix: 2,121 mg/kg
Dermal		
Product	:	ATEmix: 6,060.61 mg/kg
Inhalation		
Product	:	ATEmix: 3.49 mg/l Dusts, mists and fumes Not classified for acute toxicity based on available data.

Repeated Dose Toxicity

Product	:	No data available.
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Skin Corrosion/Irritation

Product	:	No data available.
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Serious Eye Damage/Eye Irritation

Product	:	No data available.
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Respiratory or Skin Sensitization

Product	:	No data available.
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Carcinogenicity

Product	:	No data available.
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IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

: No carcinogens present or none present in regulated quantities.

US National Toxicology Program (NTP) Report on Carcinogens

: No carcinogens present or none present in regulated quantities.

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

: No carcinogens present or none present in regulated quantities.

Germ Cell Mutagenicity

In vitro

Product	:	No data available.
Components		
1,4-Diazabicyclo(2.2.2.)Octane	:	Ames test (OECD 471): negative Own study

In vivo

Product	:	No data available.
Components		
1,4-Diazabicyclo(2.2.2.)Octane	:	In vivo micronucleus test (OECD 474) pharyngeal probe (Mouse): negative

Reproductive toxicity

Product	:	No data available.
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Specific Target Organ Toxicity - Single Exposure

Product	:	No data available.
Components		
1,4-Diazabicyclo(2.2.2.)Octane	:	Not classified.

Specific Target Organ Toxicity - Repeated Exposure

Product	:	No data available.
Components		
1,4-Diazabicyclo(2.2.2.)Octane	:	Not classified.

Aspiration Hazard

Product	:	Not classified.
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Other Effects : Causes skin irritation. Causes serious eye damage.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute hazards to the aquatic environment

Fish

Product : No data available.

Aquatic Invertebrates

Product : No data available.

Specified substance(s)

1,4-Diazabicyclo(2.2.2.)Octane : EC 50 (Algae (Pseudokirchneriella subcapitata), 72 h) : 110 mg/l (OECD 201)
ErC50 (Algae (Pseudokirchneriella subcapitata), 72 h) : 56 mg/l (OECD 201)

Chronic hazards to the aquatic environment

Fish

Product : No data available.

Aquatic Invertebrates

Product : No data available.

Toxicity to Aquatic Plants

Product : No data available.

Specified substance(s)

1,4-Diazabicyclo(2.2.2.)Octane : No data available.

Persistence and Degradability

Biodegradation

Product : No data available.

BOD/COD Ratio

Product : No data available.

Bioaccumulation potential

Bioconcentration Factor (BCF)

Product : No data available.

Partition Coefficient n-octanol / water (log Kow)

Product : Log Kow : not measured.

Mobility in Soil

Components : No data available.

1,4-Diazabicyclo(2.2.2.)Octane : No data available.

Other adverse effects

: Do not allow to enter soil, waterways or waste water canal.

13. DISPOSAL CONSIDERATIONS

Disposal Methods : In accordance with local authority regulations, take to special waste incineration plant.

Contaminated Packaging : If empty contaminated containers are recycled or disposed of, the receiver must be informed about possible hazards.

14. TRANSPORT INFORMATION

Domestic Regulation

49 CFR : Not regulated as a dangerous good

Remarks : Not dangerous according to transport regulations.

International Regulations

UNRTDG : Not regulated as a dangerous good.

IATA-DGR : Not regulated as a dangerous good.

IMDG-Code : Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable for product as supplied.

15. REGULATORY INFORMATION

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) : None present or none present in regulated quantities.

US Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

: None present or none present in regulated quantities.

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

: None present or none present in regulated quantities.

CERCLA Hazardous Substances List (40 CFR 302.4)

: None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories

: Flammable (gases, aerosols, liquids, or solids), Skin Corrosion or Irritation, Serious eye damage or eye irritation

US EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

: None present or none present in regulated quantities.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) • Supplier Notification Required

: None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

: None present or none present in regulated quantities.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

: This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
None present or none present in regulated quantities.

US State Regulations

US California Proposition 65

: No ingredient requiring a warning unde CA Prop 65.

US New Jersey Worker and Community Right-to-Know Act

: No ingredient regulated by NJ Right-to-Know Law present.

US Massachusetts RTK – Substance List

: No ingredient regulated by MA Right-to-Know Law present.

US Pennsylvania RTK – Hazardous Substances

Chemical Identity

Oxydipropanol

US Rhode Island RTK

: No ingredient regulated by RI Right-to-Know Law present.

Inventory Status

US TSCA Inventory : Included on Inventory.

Commercial Status : Active

Canada DSL Inventory List : Included on Inventory.

16. OTHER INFORMATION **Revision Date** : 03/15/2019

HMIS Hazard ID

Health = 3

Flammability = 2

Physical Hazards = 0

Personal Protection = B (Safety Glasses & Gloves)

Hazard Rating:

0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe; RNP=Rating not possible; *Chronic health effect

Issue Date : 09/28/2020

Version # : 3.0

Further Information : No data available.

Revision Information : Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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SAFETY DATA SHEET :

FIPS* ISO (MODIFIED MDI)

Ingredient of Liquid SunMate® FIPS (Foam-In-Place Seating)

*Abbreviated from Supplier Safety Data Sheet. Issue Date: 08/30/2021. Print Date: 08/31/2021.

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product Name: FIPS* Iso (Modified MDI)

Recommended use of the chemical and restrictions on use

Identified uses: Component(s) for the manufacture of urethane polymers. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: CHEMTREC +1 800-424-9300

Local Emergency Contact: +1 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Category 4 - Inhalation

Skin irritation - Category 2

Eye irritation - Category 2B

Respiratory sensitisation - Category 1

Skin sensitisation - Category 1

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

Label elements

Hazard pictograms



Signal word: DANGER!

Hazards

Causes skin and eye irritation.

May cause an allergic skin reaction.

Harmful if inhaled.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention

Do not breathe mist or vapors.

Wash skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves.

In case of inadequate ventilation wear respiratory protection.

Response

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation or rash occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Take off contaminated clothing and wash before reuse.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

No data available.

3. COMPOSITION / INFORMATION ON INGREDIENTS**Synonyms:** Isocyanates

This product is a substance.

Substance name: Methylene diphenyl diisocyanate

CASRN: 26447-40-5

Component	CASRN	Concentration
Methylene diphenyl diisocyanate	26447-40-5	>65.0 - <70.0%
4,4'-Methylene diphenyl diisocyanate	101-68-8	>61.0 - <66.0%
Methylene diphenyl diisocyanate, homopolymer	39310-05-9	>28.0 - <33.0%
Triethyl phosphate	78-40-0	≤2.0%

Note: CAS 101-68-8 is an MDI isomer that is part of CAS 26447-40-5.

4. FIRST AID MEASURES**Description of first aid measures**

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth-to-mouth, use rescuer protection (pocket mask, etc.). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation or rash occurs. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of First Aid Measures (above) and Indication of Immediate Medical Attention and Special Treatment Needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Cholinesterase inhibition has been noted in human exposure but is not of benefit in determining exposure and is not correlated with signs of exposure. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen cyanide. Carbon monoxide. Carbon dioxide.

Unusual fire and explosion hazards: Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Advice for firefighters

Firefighting procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire-fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire-fighting operations. If contact is likely, change to full chemical resistant fire-fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. If available, use foam to smother or suppress. Refer to Section 7, Handling and Storage, for additional precautionary measures. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Vermiculite. Dirt. Sand. Clay. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: Metal drums. Plastic drums. Polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5-10%; liquid detergent 0.2-2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3-8%; liquid detergent 0.2-2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact your supplier for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Use with adequate ventilation. Wash thoroughly after handling. This material is hygroscopic in nature. Keep container tightly closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store in a dry place. Protect from atmospheric moisture. Do not store product contaminated with water to prevent potential hazardous reaction. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage stability

Storage temperature:	Storage Period:
24-41°C (75-106°F)	6 Month

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Methylenediphenyl diisocyanate	Dow IHG	TWA	0.005 ppm
	Dow IHG	STEL	0.02 ppm
	OSHA Z-1	C	0.2 mg/m ³ 0.02 ppm
4,4'-Methylenediphenyl diisocyanate	Dow IHG	TWA	0.005 ppm
	Dow IHG	STEL	0.02 ppm
	ACGIH	TWA	0.005 ppm
	OSHA Z-1	C	0.2 mg/m ³ 0.02 ppm
Isocyanato-2-[(4-isocyanatophenyl)methyl]benzene	OSHA Z-1	C	0.2 mg/m ³ 0.02 ppm
Triethyl phosphate	US WEEL	TWA	7.45 mg/m ³

Exposure controls

Engineering controls: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber.

Avoid gloves made of: Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material.

Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	Yellow
Odor	Fruity
Odor Threshold	0.4 ppm <i>Based on Literature for MDI.</i> Odor is inadequate warning of excessive exposure.
pH	Not applicable
Melting point/range	Not applicable
Freezing point	<15°C (<59°F) <i>Literature</i>
Boiling point (760 mmHg)	314°C (597°F) <i>Literature</i> Decomposes before boiling
Flash point	closed cup >177°C (>351°F) <i>ASTM D 93</i>
Evaporation rate (Butyl Acetate=1)	No test data available
Flammability (solid, gas)	Not applicable
Flammability (liquids)	Not expected to be a static-accumulating flammable liquid.
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	0.0059 Pa at 20°C (68°F) <i>Estimated</i>
Relative Vapor Density (air = 1)	8.5 <i>Literature</i>
Relative Density (water = 1)	1.22 at 20°C (68°F) / 20°C <i>EC Method A3</i>
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	None by test
Decomposition temperature	>200°C (>392°F) <i>Literature</i>
Dynamic Viscosity	20-60 cP at 25°C (77°F) <i>ASTM D4889</i>
Kinematic Viscosity	No test data available
Explosive properties	Not explosive
Oxidizing properties	No
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. Reaction with water will generate carbon dioxide and heat.

Chemical stability: Stable under recommended storage conditions. See Handling and Storage, Section 7.

Possibility of hazardous reactions: Can occur. Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure build-up and/or rupturing of closed containers. Polymerization can be catalyzed by: Strong bases. Water.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide which can cause pressure build-up and rupture of closed containers. Elevated temperatures accelerate this reaction.

Incompatible materials: Avoid contact with: Acids. Alcohols. Amines. Water. Ammonia. Bases. Metal compounds. Moist air. Strong oxidizers. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate. Diisocyanates are not soluble in water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat. Avoid contact with metals such as: Aluminum. Zinc. Brass. Tin. Copper. Galvanized metals. Avoid contact with absorbent materials such as: Moist organic absorbents. Avoid unintended contact with polyols. The reaction of polyols and isocyanates generate heat.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Information on likely routes of exposure

Ingestion, Inhalation, Skin contact, Eye contact.

Acute toxicity (represents short term exposures with immediate effects – no chronic/delayed effects known unless otherwise noted)

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

Typical for this family of materials.

LD50, Rat, > 5,000 mg/kg Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Typical for this family of materials.

LD50, Rabbit, > 9,400 mg/kg

Acute inhalation toxicity

At room temperature, vapors are minimal due to low volatility. However, certain operations may generate vapor or mist concentrations sufficient to cause respiratory irritation and other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as drumming, venting or pumping. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

As product: The LC50 has not been determined.

For similar material(s): 4,4'-Methylenediphenyl diisocyanate (CAS 101-68-8).
LC50, Rat, 1 Hour, Aerosol, 2.24 mg/l

For similar material(s): 2,4'-Diphenylmethane diisocyanate (CAS 5873-54-1).
LC50, Rat, 4 Hour, Aerosol, 0.387 mg/l

Skin corrosion/irritation

Prolonged contact may cause moderate skin irritation with local redness.

Material may stick to skin causing irritation upon removal.

May stain skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight temporary corneal injury.

Sensitization

Has caused allergic skin reactions when tested in guinea pigs.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest.

Occasionally, breathing difficulties may be life threatening.

Specific target organ systemic toxicity (single exposure)

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory tract

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Contains a component which is reported to be a weak organophosphate-type cholinesterase inhibitor.

Excessive exposure may produce organophosphate type cholinesterase inhibition.

Signs and symptoms of excessive exposure may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.

Carcinogenicity

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/polymeric MDI (6 mg/m³) for their lifetime.

Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Teratogenicity

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

Reproductive toxicity

In animal studies on component(s), effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative. Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Contains component(s) which were negative in some animal genetic toxicity studies and positive in others.

12. ECOLOGICAL INFORMATION

Ecotoxicological information in this section when such data is available.

Toxicity

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis.

(LC50/EC50/EL50/LL50 > 100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates, > 100 mg/l

Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material: 14 d, > 1,000 mg/kg

Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

Persistence and degradability

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Bioconcentration factor (BCF): 92 Cyprinus carpio (Carp) 28 d

Mobility in soil

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

14. TRANSPORT INFORMATION**DOT**

Proper shipping name: OTHER REGULATED SUBSTANCES, LIQUID, N.O.S.(MDI)

UN number: NA 3082

Class: 9

Packing group: III

Reportable Quantity: MDI

Classification for SEA transport (IMO-IMDG): Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code: Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO): Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

Acute toxicity (any routes of exposure)

Respiratory of skin sensitization

Specific target organ toxicity (single or repeated exposure)

Skin corrosion or irritation

Serious eye damage or eye irritation

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Components	CASRN
Methylenebis(4-phenyl isocyanate)	101-68-8

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN
4,4' -Methylenediphenyl diisocyanate	101-68-8

Pennsylvania Worker and Community Right-To-Know Act:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact.

Revision

Identification Number: 37891 / A001 / Issue Date: 08/30/2021 / Version: 17.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
STEL	Short term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AllC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US

SAFETY DATA SHEET : FIPS POLYOL

Ingredient of Liquid SunMate® FIPS (Foam-In-Place Seating)

Revision 7. Revision Date: 09/18/2017. Print Date: 09/18/2017.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name : FIPS Polyol
Product Use Description : Polyurethane Polyol
Manufacturer : Dynamic Systems, Inc.
104 Morrow Branch Road
Leicester, NC 28748
Telephone : 1-855-786-6283 Toll free
: 1-828-683-3523 Local
Emergency Telephone Number : 1-800-424-9300 CHEMTREC

Occupational Exposure Limits: Occupational Safety and Health Administration (OSHA) Permissible Exposure limits (PELs) and/or American Conference of Government Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) may be exceeded for one or more trade secret components. Chemical identities will be revealed to treating physicians in an emergency.

2. HAZARDS IDENTIFICATION

GHS Classification : Eye irritation - Category 2B.
Combustible liquid - Category 4.

GHS Label Elements

Hazard Pictograms/Symbols: No pictogram.
Signal Word : Warning.
Hazard Statements : H320: Causes eye irritation.
H227: Combustible liquid.

Precautionary Statements

Prevention : P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response : P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: IF EYE IRRITATION PERSISTS: Get medical advice/ attention.

Component Health Hazards : Zinc hexacyanocobaltate complex catalyst residue (trace amounts from polyol process). This catalyst is a stable complex. A similar zinc hexacyanocobaltate complex catalyst was tested for its acute toxicity in animal experiments. The only adverse effect observed was slight eye irritation.
Polyol : Slight eye irritant. Slight ingestion irritant.
Surfactant : Slight eye irritant. Slight mucous membrane irritant.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Polyol is a mixture of polyols and surfactants. Specific chemical identities and exact percentage (concentration) of composition has been withheld as a trade secret.

Component	CAS Number	Concentration (wt.)
Polyol	9082-00-2	proprietary
Polyol	8001-79-4	proprietary
Polyol	25322-69-4	proprietary
Silicone Surfactant	Mixture	proprietary
Silicone Oil	63148-62-9	proprietary

4. FIRST AID MEASURES

Inhalation : Not expected to present a significant inhalation hazard under conditions of normal use.
Eye Contact : In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention if pain, blinking, tears or redness persist.
Skin Contact : Not expected to present a significant skin hazard under conditions of normal use. Remove contaminated clothing as needed. Wash skin thoroughly with mild soap and water.
Ingestion : Obtain medical attention if ingested. Ingestion is not expected to cause serious harm.
Most Important Symptoms/ Effects - Acute and Delayed
: Slight eye irritant. No inhalation, skin absorption, skin irritation, nor ingestion hazard identified from available data.
No adverse chronic health effects have been identified from available data.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media : Dry chemical, foam, or CO₂. Use water spray/waterfog for cooling.
Specific Hazards : Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Fine sprays/mists may be combustible at temperatures below normal flashpoint.

Special Protective Equipment and Precautions for Firefighters

: Do not enter fire area without proper protection. Fight fire from a safe distance/protected location. Heat may build up enough pressure to rupture closed containers, spreading fire and increasing risk of burns and injuries. Do not use solid water stream; it may spread fire. Use water spray/fog for cooling.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

: Wear suitable protective clothing, gloves, and eye/face protection. Evacuate personnel to safe areas.

Methods and Materials for Containments and Cleaning Up

: Spread granular cover or soak up. Limit access. Prevent flow to sewer/public waters. Restrict water use for cleanup. Soak up small spills with inert solids. Use suitable disposal containers. Clean residual with detergent and water solution.

7. HANDLING AND STORAGE

Precautions for Safe Handling

: Comply with all local, state, and federal laws and regulations. Landfill solids at permitted sites. Use registered transporters. Aqueous wastes may not biodegrade. Container residues and spill cleanup materials are not considered to be hazardous waste.

Conditions for Safe Storage

: Hygroscopic. Store in a closed container to preserve properties.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits

: Occupational Safety and Health Administration (OSHA) Permissible Exposure limits (PELs) and/or American Conference of Government Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) may be exceeded for one or more trade secret components. Chemical identities will be revealed to treating physicians in an emergency.

Engineering Measures

: Use with adequate ventilation. General mechanical room ventilation is satisfactory for normal handling and storage operations. Wash hands before eating, drinking, smoking or using lavatories. Promptly remove soiled clothing and wash thoroughly before reuse. Material spilled on hard surfaces can be a serious slipping or falling hazard. Spread coarse, inert, granular absorbent cover such as sawdust on any affected walking surface, and remove residual with a solution of water and detergent.

Personal Protective Equipment

Respiratory protection

: Not expected to present a respiratory hazard due to relatively low vapor pressures.

Eye protection

: Safety glasses must be worn.

Skin and body protection

: Not normally considered a skin hazard. Use impermeable gloves. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, or leaving work.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state

: Mobile liquid.

Color

: White (blue, pink or green if color added).

Odor

: Faint.

Melting Point

: No data available.

Boiling Point

: No data available.

Flash Point (TOC)

: 450°F (232°C)

Solubility

: Slight.

Autoignition Temperature

: 850°F (454°C)

10. STABILITY AND REACTIVITY

Reactivity

: Reacts exothermically with isocyanates. Hygroscopic.

Chemical Stability

: Stable under normal conditions.

Possibility of Hazardous Reactions

: Not expected to occur.

Conditions to Avoid

: Strong oxidizing agents. Strong alkalis.

Incompatible Materials

: Incompatible with strong oxidizing agents and strong alkalis.

Hazardous Decomposition Products:

Carbon dioxide in sufficient concentrations can act as an asphyxiant.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Effects on Eye

: Slight eye irritant.

Effects on Skin

: No skin absorption hazard identified from available data.

Inhalation Effects

: No inhalation hazard identified from available data.

Ingestion Effects

: No ingestion hazard identified from available data.

Symptoms

: No data available.

Acute toxicity

Acute oral toxicity

: No data available.

Inhalation

: No data available.

Acute dermal toxicity

: No data available.

Skin corrosion/irritation

: No data available.

Serious eye damage/eye irritation

: Moderate eye irritation.

Sensitization

: No data available.

Chronic Toxicity or Effects from Long Term Exposures

Carcinogenicity

: No data available.

Reproductive toxicity

: No data available.

Germ cell mutagenicity

: No data available.

Specific target organ systemic toxicity (single exposure)

: No data available.

Specific target organ systemic toxicity (repeated exposure)

: No data available.

Aspiration hazard

: No data available.

Delayed and Immediate Effects and Chronic Effects from Short and Long Term Exposure

This product contains no listed carcinogens according to NTP, IARC, and/or OSHA.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

Comply with all local, state, and federal laws and regulations. Landfill solids at permitted sites. Use registered transporters. Aqueous wastes may not biodegrade. Container residues and spill cleanup materials are not considered to be hazardous waste.

14. TRANSPORT INFORMATION**DOT**

UN Number : Not regulated.
Class : Not regulated.
Packing Group : Not regulated.
Reportable Quantity : N/A
Hazardous Material Proper Shipping Name : Not regulated.

General: Other than the normal shipping instructions and information given in this SDS, there are no specific U.S. Department of Transportation regulations governing the shipment of this material.

15. REGULATORY INFORMATION

U.S. Toxic Substances Control Act (TSCA): The following components are in the Chemical Substance Inventory:

Component	CAS#	Status
Polypropylene glycol	25322-69-4	Listed – Non-Confidential
Zinc hexacyanocobaltate complex catalyst trace residue		Listed – Confidential
Furan	110-00-9	Listed – Non-Confidential
Propylene Oxide	75-56-9	Listed – Non-Confidential
Acetaldehyde	75-07-0	Listed – Non-Confidential
Propylene Oxide	9082-00-2	Listed – Non-Confidential

16. OTHER INFORMATION

Revision Date: September 18, 2017

Verification Statement of Training for Liquid SunMate® FIPS (Foam-in-Place Seating)

This form must be completed and returned to Dynamic Systems by the user performing the FIPS pour or by the reseller's representative responsible for answering questions and instructing customers in the use and safe handling of FIPS.

As a measure to ensure customer success and safety in the use of the Liquid SunMate® FIPS system, Dynamic Systems requires verification that an understanding of basic product safety and handling has been achieved by the user or reseller before the first order will be shipped.

By signing this form you verify that you have completed at least one of the training requirements listed below, and understand the proper safety and handling procedures of this product and its application. Check all that apply:

- I have read the Liquid SunMate® FIPS Instruction Manual **AND** watched the Liquid SunMate® FIPS Instructional Video.
 I have successfully completed certification in a Liquid SunMate® FIPS Workshop.

Workshop Date: _____ Workshop Location: _____

Instructor's Name: _____ Instructor's E-mail/Phone: _____

Signature _____ Title _____ Date _____

Printed Name _____ Phone _____ Fax _____

Company Name/Facility _____ E-mail _____

Street Address _____ City _____ State _____ Zip _____

Do you resell Liquid SunMate® FIPS (Foam-in-Place Seating)? YES NO

As a reseller of FIPS, by signing this agreement, you acknowledge that you or an employee with your company can competently answer questions about this product, including but not limited to: safe chemical handling, product shelf-life and proper disposal, cold weather heating, mixing and pouring techniques, client and technician safety. If your customers do not have the most recent FIPS Instructional Video and Manual published by Dynamic Systems, you will provide them. You understand that this basic level of training is required to ensure the safe handling of this product.

We will ship your order for Liquid SunMate® FIPS upon receipt of this verification. Thank you.

Dynamic Systems inc

Specialty Cushion Manufacturer

Manufacturing Facility

104 Morrow Branch Rd, Leicester, North Carolina 28748 USA

Hours of Operation

8:00am - 5:00pm EST, Monday-Friday

Telephone

Toll Free: 1-855-SUNMATE (786-6283)
Local: 828-683-3523

24-Hour Fax

Toll Free: 1-844-270-6478
Local: 828-683-3511

Customer Service

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