UTC Aerospace Systems

Revision: 3
08/12/2015

SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: KE7005
Synonyms: Goodrich Kit Components: 74-451-120; 74-451-120-1; 74-451-120-2; 74-451-143; 74-451-152. Goodrich Kits: 74-451-K; 74-451-L; 74-451-O; 74-451-R-1; 74-451-R-2; 74-451-T; 74-451-AB; 74-451-AG, 74-451-AQ1, 74-451-AQ2.
Material identifier/Product Codes: No data available
Molecular Formula: Not applicable
Molecular Weight: Not applicable

Manufacturer/Supplier: Goodrich Corporation
Address: 1555 Corporate Woods Parkway
Uniontown, Ohio 44685
Email: Terry.Sluss@utas.utc.com
Contact Person: EH&S Manager
Business Telephone: (330)374-4011

24 Hour Emergency: (800)424-9300

Intended Use: Accelerator.

2 HAZARDS IDENTIFICATION

Physical hazards

Flammable liquids	Category 2

Health hazards

Acute Inhalation	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Sensitization, skin	Category 1
Respiratory Sensitizer	Category 1
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Specific target organ toxicity, repeated	Category 2(Lung)

OSHA defined hazards Not classified

Label elements

Hazard symbol

Signal word Danger.

Hazard statement Highly flammable Liquid and vapors**.** Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause damage to organs (Lung) through prolonged or repeated exposure.

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves. Wear eye/face protection. In case of inadequate ventilation, wear respiratory protection.

Response In case of fire: Use appropriate media to extinguish. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. Specific treatment is urgent (see this label). If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. If exposed or concerned: Call a poison center /doctor.

Storage Store away from incompatible materials. Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal Dispose of contents/container in accordance with local regulations.

Hazard(s) not otherwise classified (HNOC) Not applicable.

Supplemental information Reacts slowly with water.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Substance or Mixture: Mixture

Chemical Name	CAS-No.	Concentration (%)
Polymethylene polyphenyl isocyanate	9016-87-9	60
Containing: Diphenylmethane diisocyanate	101-68-8	20-25
Methyl ethyl ketone	78-93-3	40

Components not listed are not hazardous or are below reportable limits.

4 FIRST AID MEASURES

Inhalation: If inhaled, move to fresh air. If breathing is difficult, keep at rest in a position comfortable for breathing. Call a poison center/doctor if you feel unwell.

Eye contact: Rinse with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention if irritation develops and persists.

Skin Contact: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. If vomiting occurs; keep head lower than the hips to help prevent aspiration. Never give anything by mouth to an unconscious person. Get medical attention.

Expected acute and delayed symptoms: Dermatitis. Irritation of nose and throat. Rash. Severe eye irritation. May cause respiratory irritation. Coughing. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Prolonged exposure may cause chronic effects. May cause damage to organs through prolonged or repeated exposure.

Personal protection for first-aid responders: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Notes to physician: Treat symptomatically.

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5 FIRE-FIGHTING MEASURES

Extinguishing Media: Water spray, dry chemical, carbon dioxide, foam**.**

Specific Hazards: Reacts slowly with water. May polymerize at temperatures above 160^{o}C (320^{o}F). Container may rupture from gas generation in a fire situation.

Special Fire Fighting Procedures: Self contained breathing apparatus and full protective clothing must be worn in case of fire. Stop leak if you can do it without risk. Use water to keep fire exposed containers cool and disperse vapors. Prevent buildup of vapors or gases to explosive concentrations.

Unusual Fire & Explosion Hazards: Reacts slowly with water. May polymerize at temperatures above 160^{o}C (320^{o}F). Container may rupture from gas generation in a fire situation. Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back.

Fire-fighting equipment/instructions: Move containers from fire area if you can do so without risk.

Specific methods: Use standard firefighting procedures and consider the hazards of other involved materials.

Hazardous Combustion Products: Carbon oxides, nitrogen oxides, cyanide compound.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Measures: Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Do not breathe vapors. Avoid contact with eye, skin and clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. **Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.**

Clean-up Methods and Materials and Containment Measures: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Small Liquid Spills: Wipe up or use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Large Spillages: Contain spill. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use water spray to reduce mist/vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Container must be labeled. Dispose of collected material as soon as possible. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental Precautions: Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

7 HANDLING AND STORAGE

Handling: Personal Precautionary Measures: Wear appropriate personal protective equipment. Do not breathe mist or vapor. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Handle in closed system. Wash thoroughly after handling. Keep out of the reach of children. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.

Prevention of Fire and Explosion: Keep away from ignition sources, heat, sparks and flames. Keep away from strong oxidizing agents. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquid. Keep away from incompatible materials (see section 10 of the sds).

Storage: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Protect from sunlight. Store away from heat. Store away from oxidizing agents.

Special Handling Instructions: In addition to any precautions listed, consult occupational safety and health specialist to ensure that the suggested procedures will be adequate and in compliance with applicable laws and regulations.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Polymethylene polyphenyl isocyanate (CAS9016-87-9)	OSHA	Ceiling	0.02 ppm 0.2 mg/m3	--
Methylene diphenyl diisocyanate (CAS 101-68-8)	OSHA	Ceiling	0.2 mg/m3	--
Methyl ethyl ketone (CAS 78-93-3)	OSHA	PEL	590 mg/m3	
Polymethylene polyphenyl isocyanate (CAS9016-87-9)	ACGIH	TWA	0.005 ppm	Respiratory sensitizer
Methylene diphenyl diisocyanate (CAS 101-68-8)	ACGIH	TWA	0.005 ppm	Respiratory sensitizer
Methyl ethyl ketone (CAS 78-93-3)	ACGIH	STEL TWA	300 ppm 200 ppm	
Methylene diphenyl diisocyanate (CAS 101-68-8)	US NIOSH	Ceiling	0.2 mg/m3	--
Methylene diphenyl diisocyanate (CAS 101-68-8)	US NIOSH	TWA	0.02 ppm 0.05 mg/m3 0.005 ppm	--
Polymethylene polyphenyl isocyanate (CAS9016-87-9)	US NIOSH	Ceiling	0.2 mg/m3	
Polymethylene polyphenyl isocyanate (CAS9016-87-9)	US NIOSH	TWA	0.02 ppm 0.05 mg/m3 0.005 ppm	
Methyl ethyl ketone (CAS 78-93-3)	US NIOSH	STEL	885 mg/m3	
Methyl ethyl ketone (CAS 78-93-3)	US NIOSH	TWA	300 ppm 590 mg/m3 200 ppm	

Biological limit values:

Components	Value	Determinant	Specimen	Sampling Time
Methyl ethyl ketone (CAS 78-93-3).	2 mg/l	MEK	Urine	*

* - For sampling details, please see the source document.

Engineering Measures: Explosion-proof general and local exhaust ventilation. Ensure adequate ventilation. Depending on use, process enclosures, local exhaust ventilation, or other engineering controls may be required to keep airborne contaminants below established exposure limits.

Personal Protective Equipment

Respiratory Protection: Respiratory Protection: If engineering controls do not keep airborne concentrations below established exposure limits, follow NIOSH guidelines in determining appropriate respirator protection.

Eye Protection: Wear safety glasses with side shields (or goggles) full-face respirator, if needed.

Hand Protection: Wear chemical-resistant gloves (e.g. nitrile or latex).

Skin and Body Protection: Wear flame resistant coveralls, lab coat, or apron to prevent skin contact.

Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Color: Brown.
Odor: Musty.
Physical State: Liquid.
Odor Threshold: No data available.
pH: Not applicable.
Boiling Point: No data available
Melting Point: Not applicable.
Softening Point: Not applicable.
Flash Point: -4 ^{o}C (25^{o}F).
Evaporation Rate: No data available.
Flammability Limit – Upper (vol %): No data available.
Flammability Limit – Lower (vol %): No data available.
Vapor Pressure: No data available.
Vapor Density (Air=1): No data available.
Specific Gravity: 1.025.
Solubility in Water: Reacts with water.

Partition Coefficient (n-Octanol/water): No data available.
Autoignition Temperature: No data available.
Decomposition Temperature: No data available.
Viscosity: No data available.
Volatiles: 40% by wt. or 50% by vol.

10 STABILITY AND REACTIVITY

Stability: Stable under recommended handling and storage conditions. Material reacts slowly with water.

Conditions to Avoid: Avoid: Excessive heat, ignition sources, sparks, flame, and moisture.

Incompatible Materials: Strong oxidizing agents, water, metals, polyols, moist organic absorbents.

Hazardous Decomposition Products: Carbon oxides, nitrogen oxides, and cyanide compounds.

Hazardous Polymerizations: Will not occur.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity:

Test Results	Chemical Name
Oral LD_{50} (Rat): 9200 mg/kg	Diphenylmethane diisocyanate
Inhalation LC_{50} (Rat): 178 mg/m3	Diphenylmethane diisocyanate
Dermal LD_{50} (Rabbit): >9400 mg/kg	Polymethylene polyphenyl isocyanate
Oral LD_{50} (Rat): 49 g/kg	Polymethylene polyphenyl isocyanate
Inhalation LC_{50} (Rat): 490 mg/m_3/4H	Polymethylene polyphenyl isocyanate
Eye (Rabbit): 80 mg, Minimal to moderate irritation	Methyl ethyl ketone
Skin (Rabbit): 500 mg/24H, Moderate irritation	Methyl ethyl ketone
Dermal LD_{50} (Rabbit): 6480 mg/kg	Methyl ethyl ketone
Oral LD_{50} (Rat): 2737 mg/kg	Methyl ethyl ketone
Inhalation LC_{50} (Rat): 23500 mg/m_3/8H	Methyl ethyl ketone

Information on likely routes of exposure

Ingestion May cause irritation to the digestive system. Symptoms include irritation, vomiting, and diarrhea.

Inhalation Harmful if inhaled. Mist or vapor irritating to the respiratory system. Can cause allergic respiratory reaction. Symptoms may include coughing, asthmatic breathing, headache and other systemic effects. Decreased lung function has been associated with overexposure to isocyanates.

Isocyanates: 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.

Skin contact Causes skin irritation. May cause an allergic skin reaction. Exposure may cause rash, redness, itching, and inflammation.

Eye contact Causes serious eye irritation. Exposure may cause eye tearing, redness and discomfort.

Symptoms related to the physical, chemical and toxicological characteristics

Dermatitis. Irritation of nose and throat. Rash. Severe eye irritation. May cause respiratory irritation. Coughing. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Prolonged exposure may cause chronic effects. May cause damage to lungs through prolonged or repeated exposure.

Information on toxicological effects

Acute toxicity Harmful if inhaled. May cause an allergic skin reaction. May cause respiratory irritation.

Skin corrosion/irritation Causes skin irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. Signs/symptoms may include redness, swelling, blistering, and itching.

Serious eye damage/eye Causes serious eye irritation. Signs/symptoms may include redness, swelling, pain, irritation, tearing, and blurred or hazy vision.

Respiratory or skin sensitization

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

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity .

Listed Carcinogens:

Chemical Name	IARC	NTP	OSHA	ACGIH
Polyethylene polyphenyl isocyanate (CAS 9016-87-9)	3 Not classifiable as to carcinogenicity to humans.	--	--	--
Methylene diphenyl diisocyanate (CAS 101-68-8)	3 Not classifiable as to carcinogenicity to humans.	--	--	--

Reproductive toxicity Due to lack of data the classification is not possible.

Specific target organ toxicity - single exposure May Cause respiratory tract irritation. May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure Lungs

Aspiration hazard Due to lack of data the classification is not possible.

Further information: None

12 ECOLOGICAL INFORMATION

Ecotoxicity Accumulation in aquatic organisms is expected. Avoid releasing to the environment.

Persistence and Degradability The product is not expected to be readily biodegradable.

Bioaccumulation No data available.

Mobility in Soil No data available.

Other hazardous None known. .

13 DISPOSAL CONSIDERATIONS

General Information: Dispose in accordance with applicable federal, state, and local regulations. Mix with compatible chemical which is less flammable and incinerate.

Residual Waste: Dispose in accordance with applicable federal, state, and local regulations.

Contaminated Packaging: Empty containers of this material may contain residual liquid, vapors or dust. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container. Precautions previously cited should be observed with such containers. Follow label warnings even after container is emptied.

14 TRANSPORT INFORMATION

General Information: The transportation classification in this section is meant as a guide to the overall classification of the product and may be subject to change as a result of varying package sizes and/or updates to the specific regulations. Consult the specific shipping requirements under the appropriate transportation authority [IMO/IMDG, ICAO/IATA, 49 CFR, TDG, etc.] to assure regulatory compliance.

DOT:
UN No.: 1193
Proper Shipping Name: Methyl ethyl ketone mixture
Class: 3
Packaging Group: II
Label(s): Flammable liquid

TDG:
UN No.: 1193
Proper Shipping Name: Methyl ethyl ketone mixture
Class: 3
Packaging Group: II
Label(s): Flammable liquid

IATA:
UN No.: 1193
Proper Shipping Name: Methyl ethyl ketone mixture
Class: 3
Packaging Group: II
Environmental Hazard: No
Label(s): Flammable liquid

IMDG:
UN No.: 1193
Proper Shipping Name: Methyl ethyl ketone mixture
Class: 3
Packaging Group: II
Marine Pollutant: No
Label(s): Flammable liquid

15 REGULATORY INFORMATION

US federal regulations All components are on the U.S. EPA TSCA Inventory List.
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Methylene diphenyl diisocyanate (CAS 101-68-8) LISTED
Polymethylene polyphenyl isocyanate (CAS 9016-87-9) LISTED
Methyl ethyl ketone (CAS 78-93-3) Listed

SARA Title III (Emergency Planning& Community Right-to-Know Act (EPCRA))

Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): None

Section 311/312 (40 CFR 370):

X	Acute (Immediate)	X	Chronic (Delayed)	X	Fire		Reactive		Pressure Generating

Section 313 Toxic Release Inventory (40 CFR 372):

Component	CAS No.	Concentration
Polymethylene polyphenyl isocyanate	9016-87-9	100%
Methylene diphenyl diisocyanate	101-68-8	40-50%

Clean Air Act (CAA) Section 112, 1990 Amendments, Statutory Hazardous Air Pollutants:

Methylene diphenyl diisocyanate (CAS 101-68-8)
Polymethylene polyphenyl isocyanate (CAS 9016-87-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40CFR 68.130): None

Clean Water Act Section 307 Toxic Pollutants (40 CFR 401.15): None

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): None

Drug Enforcement Act:

Drug Enforcement Administration (21 CFR 1310.02(b) and 1310.04 (f)(2)):

Methyl ethyl ketone (CAS 78-93-3) 6714

Drug Enforcement Administration (21 CFR 1310.12(c)): Methyl ethyl ketone

TSCA:

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) (revised, effective January 16, 2007): None

ITAR, US Munitions List, Category V, Explosives & Energetic Materials, Propellants, Incendiary Agents and their Constituents (22 CFR 121): None

Homeland Security:
ATF List of Explosive Materials (27 CFR 555.23 as amended): None

State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

US. Massachusetts RTK - Substance List

Methylene diphenyl diisocyanate (CAS 101-68-8)
Polymethylene polyphenyl isocyanate (CAS 9016-87-9

Methyl ethyl ketone (CAS 78-93-3)

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

Methylene diphenyl diisocyanate (CAS 101-68-8)
Polymethylene polyphenyl isocyanate (CAS 9016-87-97)
Methyl ethyl ketone (CAS 78-93-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Methylene diphenyl diisocyanate (CAS 101-68-8)
Polymethylene polyphenyl isocyanate (CAS 9016-87-9
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

Methylene diphenyl diisocyanate (CAS 101-68-8)
Polymethylene polyphenyl isocyanate (CAS 9016-87-9
Methyl ethyl ketone (CAS 78-93-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippine	Inventory of Chemicals and Chemical Substances PICCS) Philippines	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16 OTHER INFORMATION

Hazard Ratings

	Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
NFPA	3	3	0	--

	Health Hazard	Fire Hazard	Reactivity Hazard
HMIS	3*	3	1

0 – Minimal; 1 – Slight; 2 – Moderate; 3 – Serious; 4 – Severe; * – Chronic health effect

Prepared by: Ariel Authoring Services – a 3E Company
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