

## 1. Identification

<b>Product identifier</b>	<b>0165JC421</b>
<b>Other means of identification</b>	
<b>Synonyms</b>	Goodrich Kit Components: 74-451-235-1, 74-451-235-2 (Contained in Goodrich Kits: 74-451-AQ1, 74-451-AQ2)
<b>Recommended use</b>	Coating. Sealer.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Supplier</b>	
<b>Company name</b>	Goodrich Corporation Collins Aerospace, Interiors - Evacuation, Water & Lighting (Formerly De-icing and Specialty Systems)
<b>Address</b>	1555 Corporate Woods Parkway Uniontown, Ohio 44685 USA
<b>E-mail</b>	Terry.Sluss@utas.utc.com
<b>Contact name</b>	EH&S Manager
<b>Telephone number</b>	(330)374-4011
<b>Emergency telephone number</b>	(800)424-9300/ 1-703-741-5970

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable liquids	Category 2
<b>Health hazards</b>	Acute toxicity, dermal	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Sensitization, skin	Category 1
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



**Signal word**

Danger

**Hazard statement**

Highly flammable liquid and vapor. May be fatal if swallowed and enters airways. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. May cause drowsiness or dizziness. May damage fertility or the unborn child. Toxic to aquatic life with long lasting effects.

## Precautionary statement

### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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. Avoid breathing mist/vapors. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment.

### Response

In case of fire: Use appropriate media to extinguish. If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. 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. Take off contaminated clothing and wash it before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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 exposed or concerned: Get medical advice/attention. Collect spillage.

### Storage

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

### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

### Hazard(s) not otherwise classified (HNOC)

None known.

### Supplemental information

Contact with water liberates flammable gas.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
1-Methyl-2-pyrrolidinone	872-50-4	4 - < 5
Methyl ethyl ketone	78-93-3	30 - 40
Aluminium	7429-90-5	< 30
Cyclohexanone	108-94-1	5-20
Naphtha (petroleum), hydrotreated heavy	64742-48-9	< 7
Solvent naphtha (petroleum), light aromatic	64742-95-6	< 7
Titanium dioxide	13463-67-7	< 7
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	41556-26-7	< 2
Carbon black	1333-86-4	< 1
Methyl 1,2,2,6,6-pentamethyl-4-piperidyl sebacate	82919-37-7	< 1
Polyethylene glycol di[3-[3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl]-1-oxopropyl] ether	104810-47-1	< 1
Polyethylene glycol mono-3-[3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl]-1-oxopropyl ether	104810-48-2	< 1

### Composition comments

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

The manufacturer has claimed the exact percentage as trade secret under the OSHA Hazard Communication Standard.

## 4. First-aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a poison center or doctor/physician if you feel unwell.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>Most important symptoms/effects, acute and delayed</b>	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Edema. Prolonged exposure may cause chronic effects.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Take off all contaminated clothing immediately. If exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Alcohol resistant foam. Water fog. Dry chemical powder. Dry sand. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed such as: Carbon monoxide. Carbon dioxide. Peroxides. Aliphatic hydrocarbons. Nitrogen oxides. Titanium oxide. Titanium dioxide. Aluminum oxides.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	Highly flammable liquid and vapor.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	<p>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. This product is miscible in water.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Do not get water on spilled substance or inside containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.</p> <p>Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p>

**Environmental precautions**

Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

**7. Handling and storage****Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Never allow product to get in contact with water during storage. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS).

**8. Exposure controls/personal protection****Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	PEL	5 mg/m <sup>3</sup>	Respirable fraction.
		15 mg/m <sup>3</sup>	Total dust.
Carbon black (CAS 1333-86-4)	PEL	3.5 mg/m <sup>3</sup>	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m <sup>3</sup>	
		50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m <sup>3</sup>	
		200 ppm	
Titanium dioxide (CAS 13463-67-7)	PEL	15 mg/m <sup>3</sup>	Total dust.

**US. OSHA Table Z-3 (29 CFR 1910.1000)**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m <sup>3</sup>	Respirable fraction.
		15 mg/m <sup>3</sup>	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m <sup>3</sup>	Respirable fraction.
		15 mg/m <sup>3</sup>	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.
Carbon black (CAS 1333-86-4)	TWA	3 mg/m <sup>3</sup>	Inhalable fraction.
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	

**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value	Form
Aluminium (CAS 7429-90-5)	TWA	5 mg/m3	Respirable.
		5 mg/m3	Welding fume or pyrophoric powder.
		10 mg/m3	Total
Carbon black (CAS 1333-86-4)	TWA	3.5 mg/m3	
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3	
		25 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3	
		300 ppm	
		TWA	590 mg/m3 200 ppm

**US. Workplace Environmental Exposure Level (WEEL) Guides**

Components	Type	Value
1-Methyl-2-pyrrolidinone (CAS 872-50-4)	TWA	40 mg/m3
		10 ppm

**Biological limit values****ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
1-Methyl-2-pyrrolidinone (CAS 872-50-4)	100 mg/l	5-Hydroxy-N-methyl-2-pyrrolidinone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

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

**Exposure guidelines****US - California OELs: Skin designation**

1-Methyl-2-pyrrolidinone (CAS 872-50-4)  
Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.  
Can be absorbed through the skin.

**US - Minnesota Haz Subs: Skin designation applies**

Cyclohexanone (CAS 108-94-1)

Skin designation applies.

**US - Tennessee OELs: Skin designation**

Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.

**US ACGIH Threshold Limit Values: Skin designation**

Cyclohexanone (CAS 108-94-1)

Danger of cutaneous absorption

**US WEEL Guides: Skin designation**

1-Methyl-2-pyrrolidinone (CAS 872-50-4)

Can be absorbed through the skin.

## US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1)

Can be absorbed through the skin.

**Appropriate engineering controls** Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Chemical respirator with organic vapor cartridge and full facepiece.

#### Skin protection

**Hand protection** Wear appropriate chemical resistant gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

#### Skin protection

**Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

#### Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Chemical respirator with organic vapor cartridge and full facepiece.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Observe any medical surveillance requirements. When using do not smoke. 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. Contaminated work clothing should not be allowed out of the workplace.

## 9. Physical and chemical properties

<b>Appearance</b>	Silvery. Thin liquid.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Silver.
<b>Odor</b>	Ketone. Peppermint.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	175 - 396 °F (79.4 - 202.2 °C)
<b>Flash point</b>	16.0 °F (-8.9 °C) TCC - MEK
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	0.6 % v/v
<b>Explosive limit - upper (%)</b>	12 % v/v
<b>Vapor pressure</b>	3.95 mm Hg (Cyclohexanone) 70.6 mm Hg (MEK)
<b>Vapor density</b>	> 1 (Air = 1)
<b>Relative density</b>	1.07 - 1.11
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Slightly soluble (68 °F (20 °C))
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>VOC</b>	55 - 65

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with water. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
<b>Hazardous decomposition products</b>	Carbon monoxide. Carbon dioxide. Peroxides. Aliphatic hydrocarbons. Nitrogen oxides. Titanium oxide. Titanium dioxide. Aluminum oxides.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	May irritate throat and upper respiratory system. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
<b>Skin contact</b>	Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Ingestion</b>	May be fatal if swallowed and enters airways. Swallowing may cause gastrointestinal irritation. Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

### Symptoms related to the physical, chemical and toxicological characteristics

Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Edema.

### Information on toxicological effects

**Acute toxicity** Harmful in contact with skin. May be fatal if swallowed and enters airways. Narcotic effects.

Components	Species	Test Results
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Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate (CAS 41556-26-7)

**Acute**

**Oral**

LD50	Rat	2369 - 4247 mg/kg
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Carbon black (CAS 1333-86-4)

**Acute**

**Dermal**

LD50	Rabbit	> 3000 mg/kg
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**Oral**

LD50	Rat	> 8000 mg/kg
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Cyclohexanone (CAS 108-94-1)

**Acute**

**Dermal**

ATE		300 µg/kg bw/day
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**Inhalation**

*Gas*

ATE		4500 ppm, 4 hours per day
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*Vapor*

ATE		11 mg/l, 4 hours
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*Dust and mist.*

ATE		1.5 mg/l, 4 hours per year
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*In air*

LC50	Rat	6.2 mg/l, 4 Hours
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**Oral**

LD50	Rat	1890 mg/kg
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Components	Species	Test Results
Methyl ethyl ketone (CAS 78-93-3)		
<b>Acute</b>		
<b>Dermal</b>		
LD50	Rabbit	5000 mg/kg
<b>Inhalation</b>		
LC50	Rat	35.3 mg/l
<b>Oral</b>		
LD50	Rat	3000 mg/kg
Naphtha (petroleum), hydrotreated heavy (CAS 64742-48-9)		
<b>Acute</b>		
<b>Dermal</b>		
LD50	Rabbit	> 3160 mg/kg
Titanium dioxide (CAS 13463-67-7)		
<b>Acute</b>		
<b>Oral</b>		
LD50	Rat	> 5000 mg/kg
<b>Skin corrosion/irritation</b>	Causes skin irritation.	
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.	
<b>Skin sensitization</b>	May cause an allergic skin reaction.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Carcinogenicity</b>	Risk of cancer cannot be excluded with prolonged exposure.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
Carbon black (CAS 1333-86-4)	2B Possibly carcinogenic to humans.	
Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.	
Naphtha (petroleum), hydrotreated heavy (CAS 64742-48-9)	3 Not classifiable as to carcinogenicity to humans.	
Solvent naphtha (petroleum), light aromatic (CAS 64742-95-6)	3 Not classifiable as to carcinogenicity to humans.	
Titanium dioxide (CAS 13463-67-7)	2B Possibly carcinogenic to humans.	
<b>NTP Report on Carcinogens</b>		
Carbon black (CAS 1333-86-4)	Known To Be Human Carcinogen.	
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</b>		
Not listed.		
<b>Reproductive toxicity</b>	May damage fertility or the unborn child.	
<b>Specific target organ toxicity - single exposure</b>	May cause drowsiness and dizziness.	
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.	
<b>Aspiration hazard</b>	May be fatal if swallowed and enters airways.	
<b>Chronic effects</b>	Prolonged exposure to cyclohexanone in animals resulted in weight loss, incoordination, distended ear veins, excess salivation, narcosis, lethargy, hypothermia, lymphocytosis and slight heart, liver, and kidney damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.	
<b>12. Ecological information</b>		
<b>Ecotoxicity</b>	Toxic to aquatic life with long lasting effects.	



Components	Species	Test Results	
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate (CAS 41556-26-7)			
<b>Aquatic</b>			
Fish	LC50	Bluegill ( <i>Lepomis macrochirus</i> )	1 mg/l, 96 Hours
Carbon black (CAS 1333-86-4)			
<b>Aquatic</b>			
<i>Acute</i>			
Fish	LC50	Leuciscus idus	> 1000 mg/l, 96 Hours
Cyclohexanone (CAS 108-94-1)			
<b>Aquatic</b>			
Algae	EC50	Desmodesmus subspicatus	> 100 mg/l, 72 Hours (OECD 201: Alga, Growth Inhibition Test,; Static system, Fresh water, Read-across, GLP)
Crustacea	EC50	Daphnia magna	> 100 mg/l, 48 hours (Acute Immobilisation Test , Static, system, Fresh water, Read-across, GLP)
Fish	LC50	Pimephales promelas	527 - 732 mg/l, 96 hours (Flow-through system, Fresh water,;Experimental value)
Methyl ethyl ketone (CAS 78-93-3)			
<b>Aquatic</b>			
Crustacea	LC50	Daphnia magna	12600 mg/l, 24 Hours
Fish	LC50	Goldfish ( <i>Carassius auratus</i> )	> 5000 mg/l, 24 Hours
Naphtha (petroleum), hydrotreated heavy (CAS 64742-48-9)			
<b>Aquatic</b>			
<i>Acute</i>			
Fish	LC50	Pimephales promelas	8.2 mg/l, 96 hours
Solvent naphtha (petroleum), light aromatic (CAS 64742-95-6)			
<b>Aquatic</b>			
<i>Acute</i>			
Crustacea	EL50	Daphnia	4.5 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss	10 mg/l, 96 hours
Titanium dioxide (CAS 13463-67-7)			
<b>Aquatic</b>			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	> 100 mg/l, 48 Hours
Fish	LL50	Oryzias latipes	> 100 mg/l, 96 Hours

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential**

**Partition coefficient n-octanol / water (log Kow)**

1-Methyl-2-pyrrolidinone (CAS 872-50-4)	-0.54
Cyclohexanone (CAS 108-94-1)	0.81
Methyl ethyl ketone (CAS 78-93-3)	0.29
Polyethylene glycol	< -1.3
di[3-[3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl]-1-oxopropyl] ether (CAS 104810-47-1)	
Polyethylene glycol	< -1.3
mono-3-[3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl]-1-oxopropyl ether (CAS 104810-48-2)	

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

#### DOT

<b>UN number</b>	UN1133
<b>UN proper shipping name</b>	Adhesives, containing a flammable liquid
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	3
<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	149, B52, IB2, T4, TP1, TP8
<b>Packaging exceptions</b>	150
<b>Packaging non bulk</b>	173
<b>Packaging bulk</b>	242

#### IATA

<b>UN number</b>	UN1133
<b>UN proper shipping name</b>	Adhesives, containing a flammable liquid
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	3
<b>Packing group</b>	II
<b>Environmental hazards</b>	Yes
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

#### IMDG

<b>UN number</b>	UN1133
<b>UN proper shipping name</b>	Adhesives, containing a flammable liquid
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	3
<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>EmS</b>	Not available.
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

**General information** DOT Regulated Marine Pollutant.

## 15. Regulatory information

**US federal regulations** 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)

1-Methyl-2-pyrrolidinone (CAS 872-50-4) 1.0 % Annual Export Notification required.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Cyclohexanone (CAS 108-94-1) Listed.

Methyl ethyl ketone (CAS 78-93-3) Listed.

### SARA 304 Emergency release notification

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

### Toxic Substances Control Act (TSCA)

All ingredients are on the TSCA inventory, or are not required to be listed on the TSCA inventory.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### SARA 302 Extremely hazardous substance

Not listed.

#### SARA 311/312 Hazardous chemical

Yes

#### Classified hazard categories

Flammable (gases, aerosols, liquids, or solids)  
Acute toxicity (any route of exposure)  
Skin corrosion or irritation  
Serious eye damage or eye irritation  
Respiratory or skin sensitization  
Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)  
Aspiration hazard

#### SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
1-Methyl-2-pyrrolidinone	872-50-4	4 - < 5
Aluminium	7429-90-5	< 30

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

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

Not regulated.

#### Safe Drinking Water Act (SDWA)

Contains component(s) regulated under the Safe Drinking Water Act.

#### Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

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

#### Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Methyl ethyl ketone (CAS 78-93-3) 35 %WV

#### DEA Exempt Chemical Mixtures Code Number

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

#### FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

Cyclohexanone (CAS 108-94-1) Low priority

Methyl ethyl ketone (CAS 78-93-3) Low priority

### US state regulations

#### US. Massachusetts RTK - Substance List

1-Methyl-2-pyrrolidinone (CAS 872-50-4)

Aluminium (CAS 7429-90-5)

Carbon black (CAS 1333-86-4)

Cyclohexanone (CAS 108-94-1)

Methyl ethyl ketone (CAS 78-93-3)

Titanium dioxide (CAS 13463-67-7)

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

1-Methyl-2-pyrrolidinone (CAS 872-50-4)

Aluminium (CAS 7429-90-5)  
Carbon black (CAS 1333-86-4)  
Cyclohexanone (CAS 108-94-1)  
Methyl ethyl ketone (CAS 78-93-3)  
Titanium dioxide (CAS 13463-67-7)

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

1-Methyl-2-pyrrolidinone (CAS 872-50-4)  
Aluminium (CAS 7429-90-5)  
Carbon black (CAS 1333-86-4)  
Cyclohexanone (CAS 108-94-1)  
Methyl ethyl ketone (CAS 78-93-3)  
Naphtha (petroleum), hydrotreated heavy (CAS 64742-48-9)  
Titanium dioxide (CAS 13463-67-7)

#### US. Rhode Island RTK

Aluminium (CAS 7429-90-5)  
Carbon black (CAS 1333-86-4)  
Cyclohexanone (CAS 108-94-1)  
Methyl ethyl ketone (CAS 78-93-3)  
Titanium dioxide (CAS 13463-67-7)

#### California Proposition 65



**WARNING:** This product can expose you to chemicals including Titanium dioxide, which is known to the State of California to cause cancer, and 1-Methyl-2-pyrrolidinone, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

#### California Proposition 65 - CRT: Listed date/Carcinogenic substance

Carbon black (CAS 1333-86-4) Listed: February 21, 2003  
Titanium dioxide (CAS 13463-67-7) Listed: September 2, 2011

#### California Proposition 65 - CRT: Listed date/Developmental toxin

1-Methyl-2-pyrrolidinone (CAS 872-50-4) Listed: June 15, 2001

#### US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

1-Methyl-2-pyrrolidinone (CAS 872-50-4)  
Aluminium (CAS 7429-90-5)  
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate (CAS 41556-26-7)  
Carbon black (CAS 1333-86-4)  
Methyl ethyl ketone (CAS 78-93-3)  
Naphtha (petroleum), hydrotreated heavy (CAS 64742-48-9)  
Solvent naphtha (petroleum), light aromatic (CAS 64742-95-6)  
Titanium dioxide (CAS 13463-67-7)

#### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	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, including date of preparation or last revision

**Issue date** 03-September-2015  
**Revision date** 20-July-2020  
**Version #** 04  
**HMIS® ratings** Health: 3\*  
Flammability: 3  
Physical hazard: 1

**NFPA ratings****List of abbreviations**

EC50: Effective Concentration 50%.  
LC50: Lethal Concentration 50%.  
LD50: Lethal Dose, 50%.  
NOEC: No observed effect concentration.  
STEL: Short-term Exposure Limit.  
TWA: Time weighted average.

**Disclaimer**

Goodrich Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Trade name or designation of the mixture** KE7005

**Registration number** -

**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 and 74-451-AQ2.

**Issue date** 19-June-2019

**Version number** 01

**Revision date** -

**Supersedes date** -

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** Accelerator.

**Uses advised against** None known.

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer:

**Company name** Goodrich Corporation  
:Collins Aerospace, Interiors - Evacuation, Water & Lighting (Formerly De-icing and Specialty Systems)

**Address** 1555 Corporate Woods Parkway  
Uniontown, Ohio 44685  
USA

**E-mail** Terry.Sluss@utas.utc.com

**Contact name** EH&S Manager

**Telephone number** (330)374-4011

**Emergency telephone number** 1-703-741-5970.

#### Supplier:

**Company name**

**Address**

**Telephone number**

**Contact name**

**E-mail**

### 1.4. Emergency telephone number

**General in EU** 112 (Available 24 hours a day. SDS/Product information may not be available for the Emergency Service.)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended

##### Physical hazards

Flammable liquids	Category 2	H225 - Highly flammable liquid and vapour.
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##### Health hazards

Acute toxicity, inhalation	Category 4	H332 - Harmful if inhaled.
Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.

Respiratory sensitisation	Category 1	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Carcinogenicity	Category 2	H351 - Suspected of causing cancer.
Specific target organ toxicity - single exposure	Category 3 respiratory tract irritation	H335 - May cause respiratory irritation.
Specific target organ toxicity - single exposure	Category 3 narcotic effects	H336 - May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure	Category 2 (lungs)	H373 - May cause damage to organs (lungs) through prolonged or repeated exposure.

#### Hazard summary

May be ignited by heat, sparks or flames. Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure. May cause drowsiness and dizziness. Suspected of causing cancer. Causes serious eye irritation. Causes skin irritation. May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. Occupational exposure to the substance or mixture may cause adverse health effects.

#### 2.2. Label elements

##### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** 2-Butanone (Methyl ethyl ketone), Polymethylene polyphenyl isocyanate

##### Hazard pictograms



##### Signal word

Danger

##### Hazard statements

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H373	May cause damage to organs (lungs) through prolonged or repeated exposure.

##### Precautionary statements

###### Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P260	Do not breathe mist/vapours.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

###### Response

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTRE/doctor.
P370 + P378	In case of fire: Use appropriate media to extinguish.

###### Storage

P235	Keep cool.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

###### Disposal

Not available.

**Supplemental label information** Reacts slowly with water.

### 2.3. Other hazards

This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Polymethylene polyphenyl isocyanate	60	9016-87-9	-	618-498-9.	
<b>Classification:</b>	Skin Irrit. 2;H315, Skin Sens. 1;H317, Eye Irrit. 2;H319, Acute Tox. 4;H332, Resp. Sens. 1;H334, STOT SE 3;H335, Carc. 2;H351, STOT RE 2;H373				
2-Butanone (Methyl ethyl ketone)	40	78-93-3 201-159-0	-	606-002-00-3	#
<b>Classification:</b>	Flam. Liq. 2;H225, Eye Irrit. 2;H319, STOT SE 3;H336				

#### Contains

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Methylene diphenyl diisocyanate	20 - 25	101-68-8 202-966-0	-	615-005-00-9	

#### List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

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

#### Composition comments

The full text for all H-statements is displayed in section 16.

## SECTION 4: First aid measures

#### General information

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

#### 4.1. Description of first aid measures

##### Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

##### Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

##### Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

##### Ingestion

Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions.

#### 4.2. Most important symptoms and effects, both acute and delayed

May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

## SECTION 5: Firefighting measures

#### General fire hazards

Highly flammable liquid and vapour.

#### 5.1. Extinguishing media

##### Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

##### Unsuitable extinguishing media

Water. Do not use water jet as an extinguisher, as this will spread the fire.

#### 5.2. Special hazards arising from the substance or mixture

Vapours may form explosive mixtures with air. Vapours may travel considerable distance to a source of ignition and flash back. Reacts slowly with water. Closed containers may rupture violently if heated. May polymerize at temperatures above 160 °C (320 ° F). During fire, hazardous combustion products are released that may include: Carbon oxides (CO<sub>x</sub>). Nitrogen Oxides (NO<sub>x</sub>). Cyanides.

#### 5.3. Advice for firefighters

##### Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.



**Special fire fighting procedures**

In case of fire and/or explosion do not breathe fumes. 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. Prevent buildup of vapors or gases to explosive concentrations.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapours. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.

**For emergency responders**

Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Use personal protection recommended in Section 8 of the SDS.

**6.2. Environmental precautions**

Avoid discharge into drains, water courses or onto the ground.

**6.3. Methods and material for containment and cleaning up**

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

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers.

**6.4. Reference to other sections**

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist/vapours. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

**7.2. Conditions for safe storage, including any incompatibilities**

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see section 10 of the SDS).

**7.3. Specific end use(s)**

Accelerator.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational exposure limits****UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)	STEL	899 mg/m <sup>3</sup>
		300 ppm
	TWA	600 mg/m <sup>3</sup> 200 ppm
Polymethylene polyphenyl isocyanate (CAS 9016-87-9)	STEL	0.07 mg/m <sup>3</sup>
	TWA	0.02 mg/m <sup>3</sup>

**UK. EH40 Workplace Exposure Limits (WELs)**

Contains	Type	Value
Methylene diphenyl diisocyanate (CAS 101-68-8)	STEL	0.07 mg/m <sup>3</sup>
	TWA	0.02 mg/m <sup>3</sup>

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU**

Components	Type	Value
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)	STEL	900 mg/m <sup>3</sup>
	TWA	300 ppm
		600 mg/m <sup>3</sup>
		200 ppm

**Biological limit values****UK. EH40 Biological Monitoring Guidance Values (BMGVs)**

Components	Value	Determinant	Specimen	Sampling Time
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)	70 umol/l	Butan-2-one	Urine	*
Polymethylene polyphenyl isocyanate (CAS 9016-87-9)	1 umol/mol	Isocyanate-derived diamine	Creatinine in urine	*
Contains	Value	Determinant	Specimen	Sampling Time
Methylene diphenyl diisocyanate (CAS 101-68-8)	1 umol/mol	Isocyanate-derived diamine	Creatinine in urine	*

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

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

**Exposure guidelines****UK EH40 WEL: Skin designation**

2-Butanone (Methyl ethyl ketone) (CAS 78-93-3) Can be absorbed through the skin.

**8.2. Exposure controls**

**Appropriate engineering controls** Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

**Individual protection measures, such as personal protective equipment**

**General information** Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face protection** Wear safety glasses with side shields (or goggles). Eye wash fountain is recommended.

**Skin protection**

**- Hand protection** Wear appropriate chemical resistant gloves. The use of nitrile-latex gloves is recommended.

**- Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

**Respiratory protection** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures** Observe any medical surveillance requirements. When using do not smoke. 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. Contaminated work clothing should not be allowed out of the workplace.

**Environmental exposure controls**

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties****Appearance**

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Colour</b>	Brown.
<b>Odour</b>	Musty
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	-4.0 °C (24.8 °F)
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	Not available.
<b>Vapour density</b>	Not available.
<b>Relative density</b>	1.025
<b>Solubility(ies)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Percent volatile</b>	40% by wt. or 50% by volume.

**SECTION 10: Stability and reactivity**

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	Material reacts slowly with water.
<b>10.4. Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Moisture. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Water. Strong oxidising agents. Alkali metals. Alcohols. Amines. Ammonia. Caustics. Isocyanates. Phenols. Polyols. Moist organic absorbents.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

**SECTION 11: Toxicological information**

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
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## Information on likely routes of exposure

**Inhalation** Harmful if inhaled. May cause drowsiness and dizziness. Headache. Nausea, vomiting. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.

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.

**Eye contact** Causes serious eye irritation.

**Ingestion** May cause digestive tract irritation.

**Symptoms** May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

### 11.1. Information on toxicological effects

**Acute toxicity** Harmful if inhaled.

Components	Species	Test Results
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2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)

#### Acute

##### **Dermal**

LD50	Rabbit	5000 mg/kg
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##### **Inhalation**

LC50	Rat	35.3 mg/l
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##### **Oral**

LD50	Rat	3000 mg/kg
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Polymethylene polyphenyl isocyanate (CAS 9016-87-9)

#### Acute

##### **Dermal**

LD50	Rabbit	> 10000 mg/kg
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##### **Inhalation**

###### *Mist*

LC50	Rat	> 490 mg/m <sup>3</sup> , 4 Hours
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##### **Oral**

LD50	Rat	> 10000 mg/kg
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Contains	Species	Test Results
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Methylene diphenyl diisocyanate (CAS 101-68-8)

#### Acute

##### **Inhalation**

LC50	Rat	> 2.24 mg/l, 1 Hours
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**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye irritation.

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

**Skin sensitisation** May cause an allergic skin reaction.

**Germ cell mutagenicity** Due to partial or complete lack of data the classification is not possible.

**Carcinogenicity** Suspected of causing cancer.

#### **IARC Monographs. Overall Evaluation of Carcinogenicity**

Methylene diphenyl diisocyanate (CAS 101-68-8) 3 Not classifiable as to carcinogenicity to humans.

Polymethylene polyphenyl isocyanate (CAS 9016-87-9) 3 Not classifiable as to carcinogenicity to humans.

**Reproductive toxicity** Due to partial or complete lack of data the classification is not possible.

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

<b>Specific target organ toxicity - repeated exposure</b>	May cause damage to organs (lungs) through prolonged or repeated exposure.
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.
<b>Mixture versus substance information</b>	The product is a mixture.
<b>Other information</b>	Prolonged or repeated exposure may be harmful.

## SECTION 12: Ecological information

**12.1. Toxicity** Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Components	Species	Test Results
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)		
<b>Aquatic</b>		
Crustacea	LC50 Daphnia magna	12600 mg/l, 24 Hours
Fish	LC50 Goldfish (Carassius auratus)	> 5000 mg/l, 24 Hours

**12.2. Persistence and degradability** No data is available on the degradability of this product.

**12.3. Bioaccumulative potential** Accumulation in aquatic organisms is expected.

### Partition coefficient n-octanol/water (log Kow)

2-Butanone (Methyl ethyl ketone) (CAS 78-93-3) 0.29

**Bioconcentration factor (BCF)** Not available.

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

**12.6. Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Disposal methods/information</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN1193
<b>14.2. UN proper shipping name</b>	Ethyl methyl ketone or Methyl ethyl ketone
<b>14.3. Transport hazard class(es)</b>	
Class	3
Subsidiary risk	-
Label(s)	3
Hazard No. (ADR)	Not available.
Tunnel restriction code	Not available.
<b>14.4. Packing group</b>	II
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### RID

<b>14.1. UN number</b>	UN1193
<b>14.2. UN proper shipping name</b>	Ethyl methyl ketone or Methyl ethyl ketone

**14.3. Transport hazard class(es)**

Class 3  
Subsidiary risk -  
Label(s) 3

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

**ADN**

14.1. UN number UN1193

14.2. UN proper shipping name Ethyl methyl ketone or Methyl ethyl ketone

**14.3. Transport hazard class(es)**

Class 3  
Subsidiary risk -  
Label(s) 3

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

**IATA**

14.1. UN number UN1193

14.2. UN proper shipping name Ethyl methyl ketone or Methyl ethyl ketone

**14.3. Transport hazard class(es)**

Class 3  
Subsidiary risk -  
Label(s) 3

14.4. Packing group II

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

14.1. UN number UN1193

14.2. UN proper shipping name Ethyl methyl ketone or Methyl ethyl ketone

**14.3. Transport hazard class(es)**

Class 3  
Subsidiary risk -  
Label(s) 3

14.4. Packing group II

14.5. Environmental hazards

Marine pollutant No.

EmS Not available.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations**

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**  
Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**  
Not listed.
- Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**  
Not listed.
- Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**  
Not listed.

#### Authorisations

- Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**  
Not listed.

#### Restrictions on use

- Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**  
Methylene diphenyl diisocyanate (CAS 101-68-8)
- Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**  
Not listed.

#### Other EU regulations

- Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**  
2-Butanone (Methyl ethyl ketone) (CAS 78-93-3)

#### Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

#### National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

#### List of abbreviations

LC50: Lethal Concentration 50%.  
LD50: Lethal Dose 50%.  
STEL: Short-Term Exposure Limit.  
TWA: Time Weighted Average Value.  
ADR: European Agreement Concerning the International Carriage of Dangerous Goods by Road.  
ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.  
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.  
IATA: International Air Transport Association.  
IMDG Code: International Maritime Dangerous Goods Code.

#### References

Not available.

#### Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

#### Full text of any H-statements not written out in full under Sections 2 to 15

H225 Highly flammable liquid and vapour.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness.  
H351 Suspected of causing cancer.  
H373 May cause damage to organs through prolonged or repeated exposure by inhalation.

#### Training information

Follow training instructions when handling this material.

**Disclaimer**

Goodrich Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.