Safety Data Sheet

Document Group:	31-2379-1	**Version Number:**	2.00
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SECTION 1: Identification

1.1. Product identifier
3M™ Formula C

1.2. Recommended use and restrictions on use

Recommended use
Lapping vehicle

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Abrasive Systems Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Flammable Liquid: Category 4.
Acute Toxicity (dermal): Category 4.
Acute Toxicity (inhalation): Category 4.
Aspiration Hazard: Category 1.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (single exposure): Category 3.
Specific Target Organ Toxicity (repeated exposure): Category 1.

2.2. Label elements
Signal word
Danger

Symbols
Exclamation mark | Health Hazard |

Pictograms

Hazard Statements
Combustible liquid.

Harmful in contact with skin.
Harmful if inhaled.
May be fatal if swallowed and enters airways.
May cause drowsiness or dizziness.

Causes damage to organs:
blood or blood-forming organs |

Causes damage to organs through prolonged or repeated exposure:
blood or blood-forming organs |

Precautionary Statements

Prevention:
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.

Response:
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN: Wash with plenty of soap and water.
Take off contaminated clothing and wash it before reuse.
Do NOT induce vomiting.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

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

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

5% of the mixture consists of ingredients of unknown acute inhalation toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Straight Run Middle Distillate	64741-44-2	< 98 Trade Secret *
Ethylene Glycol Monobutyl Ether	111-76-2	< 10 Trade Secret *

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye Contact:
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:
Do not induce vomiting. Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

5.3. Special protective actions for fire-fighters
Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. 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. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for

information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. 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.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a closed container approved for transportation by appropriate authorities. 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. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial or professional use only. Avoid breathing of dust created by sanding, grinding or machining. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.)

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store away from heat. Store away from acids. Store away from oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
Ethylene Glycol Monobutyl Ether	111-76-2	ACGIH	TWA:20 ppm	A3: Confirmed animal carcin.
Ethylene Glycol Monobutyl Ether	111-76-2	OSHA	TWA:240 mg/m3(50 ppm)	SKIN

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Provide appropriate local exhaust ventilation for sanding, grinding or machining. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety Glasses with side shields

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended: Butyl Rubber
Fluoroelastomer

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Liquid
Odor, Color, Grade:	Mild Hydrocarbon Odor / Yellowish-Colored Liquid
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point	15 ºF
Boiling Point	340 ºF
Flash Point	178 ºF
Evaporation rate	*No Data Available*
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	0.7
Flammable Limits(UEL)	6.0 [*Details:*Estimated]
Vapor Pressure	*No Data Available*
Vapor Density	>=1
Density	*No Data Available*
Specific Gravity	0.88 [*Ref Std:*WATER=1]
Solubility in Water	Nil
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Viscosity	*No Data Available*
Volatile Organic Compounds	1000 g/l
Percent volatile	100 %
VOC Less H2O & Exempt Solvents	1000 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Heat
Sparks and/or flames

10.5. Incompatible materials
Strong oxidizing agents
Alkali and alkaline earth metals

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Harmful if inhaled. Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Dust from grinding, sanding or machining may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
Harmful in contact with skin. Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

Eye Contact:
Dust created by grinding, sanding, or machining may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion:
Chemical (Aspiration) Pneumonitis: Signs/symptoms may include coughing, gasping, choking, burning of the mouth, difficulty breathing, bluish colored skin (cyanosis), and may be fatal.

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Blood Effects: Signs/symptoms may include generalized weakness and fatigue, skin pallor, changes in blood clotting time, internal bleeding, and/or hemoglobinemia.

Prolonged or repeated exposure may cause target organ effects:
Blood Effects: Signs/symptoms may include generalized weakness and fatigue, skin pallor, changes in blood clotting time, internal bleeding, and/or hemoglobinemia.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE1,000 - 2,000 mg/kg
Overall product	Inhalation-Dust/Mist(4 hr)		No data available; calculated ATE1 - 5 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Straight Run Middle Distillate	Dermal	Rabbit	LD50 > 2,000 mg/kg
Straight Run Middle Distillate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 1.8 mg/l
Straight Run Middle Distillate	Ingestion	Rat	LD50 > 5,000 mg/kg
Ethylene Glycol Monobutyl Ether	Dermal	Guinea pig	LD50 > 2,000 mg/kg
Ethylene Glycol Monobutyl Ether	Inhalation-Vapor (4 hours)	Guinea pig	LC50 > 2.6 mg/l
Ethylene Glycol Monobutyl Ether	Ingestion	Guinea pig	LD50 1,414 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Straight Run Middle Distillate	Rabbit	Mild irritant
Ethylene Glycol Monobutyl Ether	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
Straight Run Middle Distillate	Rabbit	Mild irritant
Ethylene Glycol Monobutyl Ether	Rabbit	Severe irritant

Skin Sensitization

Name	Species	Value
Straight Run Middle Distillate	Guinea pig	Not classified
Ethylene Glycol Monobutyl Ether	Guinea pig	Not classified

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Straight Run Middle Distillate	In vivo	Not mutagenic
Straight Run Middle Distillate	In Vitro	Some positive data exist, but the data are not sufficient for classification
Ethylene Glycol Monobutyl Ether	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Straight Run Middle Distillate	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Ethylene Glycol Monobutyl Ether	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Ethylene Glycol Monobutyl Ether	Dermal	Not classified for development	Rat	NOAEL 1,760 mg/kg/day	during gestation
Ethylene Glycol Monobutyl Ether	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	during organogenesis
Ethylene Glycol Monobutyl Ether	Inhalation	Not classified for development	Multiple animal species	NOAEL 0.48 mg/l	during organogenesis

Lactation

Name	Route	Species	Value
Straight Run Middle Distillate	Dermal	Rabbit	Not classified for effects on or via lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Straight Run Middle Distillate	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Not available	NOAEL Not available	
Straight Run Middle Distillate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Straight Run Middle Distillate	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Not available	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Dermal	endocrine system	Not classified	Rabbit	NOAEL 902 mg/kg	6 hours
Ethylene Glycol Monobutyl Ether	Dermal	liver	Not classified	Rabbit	LOAEL 72 mg/kg	not available
Ethylene Glycol	Dermal	kidney and/or	Not classified	Rabbit	LOAEL 451	6 hours

Monobutyl Ether		bladder			mg/kg	
Ethylene Glycol Monobutyl Ether	Dermal	blood	Not classified	Multiple animal species	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Inhalation	blood	Not classified	Multiple animal species	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Ingestion	blood	Not classified	Multiple animal species	NOAEL Not available	
Ethylene Glycol Monobutyl Ether	Ingestion	kidney and/or bladder	Not classified	Human	NOAEL Not available	poisoning and/or abuse

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Straight Run Middle Distillate	Dermal	heart | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | bone marrow | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system	Not classified	Rabbit	NOAEL 2,000 mg/kg	28 days
Ethylene Glycol Monobutyl Ether	Dermal	blood	Not classified	Multiple animal species	NOAEL Not available	not available
Ethylene Glycol Monobutyl Ether	Dermal	endocrine system	Not classified	Rabbit	NOAEL 150 mg/kg/day	90 days
Ethylene Glycol Monobutyl Ether	Inhalation	liver	Not classified	Rat	NOAEL 2.4 mg/l	14 weeks
Ethylene Glycol Monobutyl Ether	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 0.15 mg/l	14 weeks
Ethylene Glycol Monobutyl Ether	Inhalation	blood	Not classified	Rat	LOAEL 0.15 mg/l	6 months
Ethylene Glycol Monobutyl Ether	Inhalation	endocrine system	Not classified	Dog	LOAEL 1.9 mg/l	8 days
Ethylene Glycol Monobutyl Ether	Ingestion	blood	Not classified	Rat	LOAEL 69 mg/kg/day	13 weeks
Ethylene Glycol Monobutyl Ether	Ingestion	kidney and/or bladder	Not classified	Multiple animal species	NOAEL Not available	not available

Aspiration Hazard

Name	Value
Straight Run Middle Distillate	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

EPA Hazardous Waste Number (RCRA): Not regulated

SECTION 14: Transport Information

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: Regulatory information

15.1. US Federal Regulations
Contact 3M for more information.

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Flammable (gases, aerosols, liquids, or solids)

Health Hazards
Acute toxicity
Aspiration Hazard
Specific target organ toxicity (single or repeated exposure)

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	C.A.S. No	% by Wt
Ethylene Glycol Monobutyl Ether (GLYCOL ETHERS)	111-76-2	< 10

15.2. State Regulations
Contact 3M for more information.

15.3. Chemical Inventories
The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 2 **Flammability:** 2 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

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