SAFETY DATA SHEET
HexPly® F155 (MEK/Acetone)

1. Identification

Product identifier

Product name	HexPly® F155 (MEK/Acetone)
Chemical name	Epoxy resin formulation in film form or film containing continous fibers of glass, carbon or aramid
Product number	20743US-2
Synonyms; trade names	TEF F155; F155; F155 HI GRAV; F155-5R; F155-5HR HI GRAV; F155-200

Recommended use of the chemical and restrictions on use

Application	Formulated product for Aerospace applications
Uses advised against	Use only for intended applications.

Details of the supplier of the safety data sheet

Supplier	Hexcel Corporation 6700 West 5400 South West Valley City, UT 84118-7678 USA Tel: ++801 252 3400 Tel: ++800 987 0658
Contact Person	6700 West 5400 South, West Valley City, UT 84118-7678, USA ++801 252 3400, 11711 Dublin Blvd, Dublin, California, USA ++925 551 4900, SDSUSOffice@hexcel.com

Emergency telephone number

Emergency telephone	To be used only for advice on chemical emergencies, spillages, fires or First Aid: For emergencies in US/Canada: CHEMTREC – 800 424 9300 / 703 527 3887 CCN10462 For emergencies in rest of the world: CARECHEM24 – +44 (0) 1235 239 670

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status	This Product is Hazardous under the OSHA Hazard Communication Standard.
Physical hazards	Combustible Dust - USH01
Health hazards	Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1B - H350 Repr. 1A - H360 STOT RE 2 - H373
Environmental hazards	Not Classified

Label elements

Pictogram

Signal word Danger

HexPly® F155 (MEK/Acetone)

Hazard statements	H315 Causes skin irritation. H319 Causes serious eye irritation. H317 May cause an allergic skin reaction. H341 Suspected of causing genetic defects. H350 May cause cancer. H360 May damage fertility or the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. USH01 May form combustible dust concentrations in air.
Precautionary statements	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe dust. P261 Avoid breathing dust. P264 Wash contaminated skin thoroughly after handling. P272 Contaminated work clothing must not be allowed out of the workplace. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352 If on skin: Wash with plenty of water. 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. P314 Get medical advice/ attention if you feel unwell. P321 Specific treatment (see medical advice on this label). P332+P313 If skin irritation occurs: Get medical advice/ attention. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P337+P313 If eye irritation persists: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P405 Store locked up. P501 Dispose of contents/ container in accordance with national regulations.
Contains	Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers, p-(2,3-epoxypropoxy)-N,N-bis(2,3-epoxypropyl)aniline, SOLID EPOXY RESIN - Phenol, 4,4'-(methylethylidene) bis-polymer with 2,2'-[(1-methylethylidene) bis (4,1-phenyleneoxymethylene) bis [oxirane], BISPHENOL A EPOXY RESIN (Number average MW ≤ 700), ANTIMONY TRIOXIDE, DIURON (ISO)

Other hazards

Warning! Dust generated from machining, grinding or sanding the product may be combustible and could result in fire and/or explosion should the necessary dust concentration in air and ignition source be present.

Hazards not otherwise classified (HNOC): Fine dust clouds may form explosive mixtures with air.

3. Composition/information on ingredients

Mixtures

Propane, 2,2-bis[p-(2,3-epoxypropoxy)phenyl]-, polymers CAS number: 25085-99-8	10-30%
Classification Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 Aquatic Chronic 2 - H411	

HexPly® F155 (MEK/Acetone)

p-(2,3-epoxypropoxy)-N,N-bis(2,3-epoxypropyl)aniline CAS number: 5026-74-4	10-30%
Classification Acute Tox. 4 - H302 Skin Sens. 1 - H317 Muta. 2 - H341 STOT RE 2 - H373 Aquatic Chronic 2 - H411	
TETRABROMOBISPHENOL-A CAS number: 79-94-7 M factor (Acute) = 1 M factor (Chronic) = 1	10-30%
Classification Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	
SOLID EPOXY RESIN - Phenol, 4,4'-(methylethylidene) bis-polymer with 2,2'-[(1-methylethylidene) bis (4,1-phenyleneoxymethylene) bis [oxirane] CAS number: 25036-25-3	10-30%
Classification Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317	
BISPHENOL A EPOXY RESIN (Number average MW ≤ 700) CAS number: 25068-38-6	5-10%
Classification Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Skin Sens. 1 - H317 Aquatic Chronic 2 - H411	
ANTIMONY TRIOXIDE CAS number: 1309-64-4	1-5%
Classification Combustible Dust - USH01 Carc. 2 - H351	

HexPly® F155 (MEK/Acetone)

DIURON (ISO)	**1-5%**
CAS number: 330-54-1	
M factor (Acute) = 100	**M factor (Chronic) = 10**
Classification Acute Tox. 4 - H302 Eye Irrit. 2B - H320 Carc. 2 - H351 STOT RE 2 - H373 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	

XYLENE	**1-5%**
CAS number: 1330-20-7	
Classification Flam. Liq. 3 - H226 Acute Tox. 4 - H312 Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 STOT SE 3 - H335	

ACETONE	**1-5%**
CAS number: 67-64-1	
Classification Flam. Liq. 2 - H225 Eye Irrit. 2A - H319 STOT SE 3 - H336	

BUTANONE; METHYL ETHYL KETONE (MEK)	**1-5%**
CAS number: 78-93-3	
Classification Flam. Liq. 2 - H225 Eye Irrit. 2A - H319 STOT SE 3 - H336	

HexPly® F155 (MEK/Acetone)

ETHYLBENZENE	<1%
CAS number: 100-41-4	
Classification Flam. Liq. 2 - H225 Acute Tox. 4 - H332 Eye Irrit. 2A - H319 STOT RE 2 - H373 Asp. Tox. 1 - H304 Aquatic Acute 2 - H401 Aquatic Chronic 3 - H412	

TALC	<1%
CAS number: 14807-96-6	
Classification Not Classified	

The full text for all hazard statements is displayed in Section 16.

Composition comments	The product consists of a resin and fabric component. Possible exposure to the above mentioned chemicals will be as a result of contact with the resin. The above mentioned concentrations have been calculated based only on the resin component; no allowance has been made for the fabric component as this does not provide any dilution effect.
Ingredient notes	The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with 29 CFR §1910.1200.

4. First-aid measures

Description of first aid measures

Inhalation	With any sign of respiratory distress, affected persons should be taken into fresh air and made to rest while medical attention is sought.
Ingestion	Immediately rinse the mouth repeatedly with water, if swallowing has occurred, do not induce vomiting. If requested, give affected person sips of water. Seek medical attention immediately. If vomiting does occur do not allow the affected person to inhale their vomit. Do not give anything by mouth to an unconscious person.
Skin Contact	With uncured material, immediately wash the affected area with warm, soapy water then clean the skin with resin removing cream, followed by further washing with warm soapy water. Do not use solvents. If irritation persists, seek medical attention.
Eye contact	Flush with water for at least 15 minutes and seek medical attention if irritation persists.

Most important symptoms and effects, both acute and delayed

Inhalation	Inhalation of dust during cutting, grinding or sanding operations involving this product may cause irritation of the respiratory tract.
Skin contact	Contact with dust may cause mechanical irritation.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	No specific recommendations. If in doubt, get medical attention promptly.

5. Fire-fighting measures

Extinguishing media

HexPly® F155 (MEK/Acetone)

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards	This product is electrically conductive (carbon only). If aluminum coated fiberglass (thorstrand) is used as the substrate, must be in accordance with NFPA 651. Dust or particles from machining, grinding or sawing the product should no be exposed to moisture as it may liberate hydrogen gas and form explosive air mixures. Dusts at sufficient concentrations can form explosive mixtures with air.
Hazardous combustion products	The products of combustion and decomposition depend on other materials present in the fire and the actual conditions of the fire. Burning will release carbon dioxide, water, carbon monoxide and compounds of nitrogen.

Advice for firefighters

Protective actions during firefighting	As in any fire, wear self-contained breathing apparatus pressure-demand, OSHA/NIOSH (approved or equivalent) and full protective gear.
Special protective equipment for firefighters	Use air-supplied respirator, gloves and protective goggles.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear protective clothing as described in Section 8 of this safety data sheet.

Environmental precautions

Environmental precautions	Due to the physical nature of this product, environmental release to drains and water courses is not possible.

Methods and material for containment and cleaning up

Methods for cleaning up	Clean up material and put into a suitable container and dispose of properly (See Section 13).
Reference to other sections	For personal protection, see Section 8. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions	Avoid contact with uncured product. Avoid inhalation of dust/fumes generated during processing operations. Dust from machining cured product will contain fibrous material. Avoid inhalation and provide positive dust extraction and collection from cutting zone. Protect against fire and explosion by avoiding dust formation and ignition sources when machining cured product. Dust from products containing carbon fibre is electrically conductive.

Conditions for safe storage, including any incompatibilities

Storage precautions	Store containers, securely closed according to container label instructions.

8. Exposure controls/Personal protection

Control parameters

Occupational exposure limits

ANTIMONY TRIOXIDE

Long-term exposure limit (8-hour TWA): ACGIH 0.5 mg/m³
as Sb
A2

HexPly® F155 (MEK/Acetone)

DIURON (ISO)

Long-term exposure limit (8-hour TWA): ACGIH 10 mg/m³
A4

XYLENE

Long-term exposure limit (8-hour TWA): ACGIH 100 ppm
Short-term exposure limit (15-minute): ACGIH 150 ppm
A4
Long-term exposure limit (8-hour TWA): OSHA 100 ppm 435 mg/m³

ACETONE

Long-term exposure limit (8-hour TWA): ACGIH 250 ppm 594 mg/m³
Short-term exposure limit (15-minute): ACGIH 500 ppm 1187 mg/m³
A4
Long-term exposure limit (8-hour TWA): OSHA 1000 ppm 2400 mg/m³

BUTANONE; METHYL ETHYL KETONE (MEK)

Long-term exposure limit (8-hour TWA): OSHA 200 ppm 590 mg/m³
Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 590 mg/m³
Short-term exposure limit (15-minute): ACGIH 300 ppm 885 mg/m³

ETHYLBENZENE

A3
Long-term exposure limit (8-hour TWA): OSHA 100 ppm 435 mg/m³
Long-term exposure limit (8-hour TWA): ACGIH 20 ppm

TALC

Long-term exposure limit (8-hour TWA): OSHA 20 particles/cc respirable dust
Long-term exposure limit (8-hour TWA): ACGIH 0.1 f/cc containing asbestos fibers
A1
Long-term exposure limit (8-hour TWA): ACGIH 2 mg/m³ respirable fraction
A4

A3 = Confirmed Animal Carcinogen with Unknown Relevance to Humans.
OSHA = Occupational Safety and Health Administration.
ACGIH = American Conference of Governmental Industrial Hygienists.
A4 = Not Classifiable as a Human Carcinogen.
A2 = Suspected Human Carcinogen.
A1 = Confirmed Human Carcinogen.

Exposure controls

Protective equipment

Appropriate engineering controls	Provide adequate general and local exhaust ventilation.
Eye/face protection	Goggles or face protection should be worn during machining operations.
Hand protection	Avoid skin contact by use of impermeable gloves when handling the product. Recommendation: To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material.
Other skin and body protection	Ensure forearms are protected by use of gloves with long gauntlet, disposable sleeves or long sleeve overalls.

HexPly® F155 (MEK/Acetone)

Hygiene measures	Wash at the end of each work shift and before eating, smoking and using the toilet.
Respiratory protection	Local exhaust ventilation should be used or an approved respirator worn where dust from machining may arise.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Flexible resin film containing continuous fibers of glass, carbon or aramid in unidirectional or woven fabric form. Product is protected by colored polyethylene or release paper.
Color	Black.
Odor	No characteristic odor.
Odor threshold	Not applicable due to its low odour.
pH	Not relevant due to the physical form of this product.
Melting point	Not relevant due to the physical form of this product.
Initial boiling point and range	Not relevant due to the physical form of this product.
Flash point	Not relevant due to the physical form of this product.
Evaporation rate	Not relevant due to the physical form of this product.
Evaporation factor	Not relevant due to the physical form of this product.
Flammability (solid, gas)	Not relevant due to the physical form of this product.
Upper/lower flammability or explosive limits	Not relevant due to the physical form of this product.
Vapor pressure	Not relevant due to the physical form of this product.
Vapor density	Not relevant due to the physical form of this product.
Relative density	Not relevant due to the physical form of this product.
Bulk density	Not relevant due to the physical form of this product.
Solubility(ies)	The product is supplied in roll form. It is protected each side by polythene or release paper. The availability of the product to be exposed to a condition where solubility can occur is minimal.
Partition coefficient	Technically not feasible.
Auto-ignition temperature	Not relevant due to the physical form of this product.
Decomposition Temperature	300°C/572°F
Viscosity	Not relevant due to the physical form of this product.
Explosive properties	Not classified as explosive but dust or airborne filaments could induce explosion in high voltage equipments by short circuit.
Oxidizing properties	Does not meet the criteria for classification as oxidizing.
Comments	The indicated values do not necessarily correspond to the product specification. Please refer to the technical data sheet for specification data.
Other information	No information required.
Volatility	«184»

HexPly® F155 (MEK/Acetone)

Volatile organic compound	This product contains a maximum VOC content of 3.5 %. The value provided is a guideline based on a calculation method using the best available data. The calculation method covers the definition of VOC provided by The California Air Resources Board (CARB) - ARB Method 310, US EPA National Consumer Products Regulations, and the Ozone Transport Commission – OTC Model Rule. The VOC value has been calculated based on the resin component only; no allowance has been made for the fabric component.

10. Stability and reactivity

Reactivity	Refer to section 10.3 for further details.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Exposure of the material to high temperatures may produce an uncontrolled exothermic reaction, which may be severe if material is in bulk (rolls).
Conditions to avoid	Avoid heat, flames and other sources of ignition. May form combustible dust concentrations in air
Materials to avoid	Avoid strong acids, bases and oxidizers.
Hazardous decomposition products	Thermal decomposition and burning may release oxides of carbon, nitrogen and sulphur. The composition of gases/vapors/by-products generated during decomposition will vary depending on temperature conditions, temperature rate of rise and the presence of other chemicals in the vicinity that may react with the product. Gases/vapors/by-products should be regarded as toxic.

11. Toxicological information

Information on toxicological effects

Toxicological effects	This product and its components are considered and Article with no intentional release.
Other health effects	The components present in this material at concentrations equal to or greater that 0.1% are not listed or regulated by IARC, NTP, OSHA or ACGIH as a carcinogen. Except for Diuron (CAS# 330-54-1) which is an ACGIH class A4, not classified as a human carcinogen. Antimony Trioxide (CAS# 1309-64-4) which is an ACGIH class A2, suspected human carcinogen, an IARC class 2B, possible human carcinogen.

Acute toxicity - oral

Notes (oral LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD_{50})	Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC_{50})	Based on available data the classification criteria are not met.

Skin corrosion/irritation

Skin corrosion/irritation	Causes skin irritation.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye irritation.

Respiratory sensitization

Respiratory sensitization	Based on available data the classification criteria are not met.

Skin sensitization

HexPly® F155 (MEK/Acetone)

Skin sensitization	May cause an allergic skin reaction.

Germ cell mutagenicity

Summary	Suspected of causing genetic defects.

Carcinogenicity

Carcinogenicity	May cause cancer.

Reproductive toxicity

Reproductive toxicity - fertility	May damage fertility or the unborn child.

Specific target organ toxicity - single exposure

STOT - single exposure	Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Aspiration hazard	Based on available data the classification criteria are not met.

12. Ecological information

Toxicity	Daphnia Immobilization Study program covering the chemistry family of the saleable product has been conducted to determine the aquatic toxicity of prepregs. Based on the study results, the product is not required to be labelled for supply with the dead fish / dead tree symbol (GHS09) in accordance with GHS guidelines.

Persistence and degradability

Persistence and degradability	There are no data on the degradability of this product.

Bioaccumulative potential

Bio-Accumulative Potential	No data available on bioaccumulation.
Partition coefficient	Technically not feasible.

Mobility in soil

Mobility	Not relevant due to the physical form of this product.

Other adverse effects

Other adverse effects	None known.

13. Disposal considerations

Waste treatment methods

General information	Materials for disposal should be placed in appropriate sealed containers to avoid potential human and environmental exposure. It is the responsibility of the generator to comply with all federal, state, provincial and local laws and regulations. We recommend that you contact an appropriate waste disposal contractor and environmental agency for relevant laws and regulations. Under the U.S., Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification and to assure proper disposal.

HexPly® F155 (MEK/Acetone)

Disposal methods	It is recommended to conduct a risk assessment prior to recycling or re-using paper coverings or any other packaging to ensure the downstream user's exposure to any potential hazard is identified and appropriately managed. For packaging and paper coverings, which may have come into direct contact with the product, the hazard classification and applicable regulatory restriction associated with the chemicals identified in section 3 of the Safety Data Sheet should be considered during the risk assessment to ensure no recycling or re-use in downstream application/markets where the use would not be approved.

14. Transport information

General	Daphnia Immobilization Study program covering the chemistry family of the saleable product has been conducted to determine the aquatic toxicity of prepregs. Based on the study results, the product is not required to be labelled for supply with the dead fish / dead tree symbol (GHS09) in accordance with GHS guidelines, and is not considered as Class 9 in accordance with Tranport of Dangerous Goods Regulations. The product is considered non-hazardous for transport. However, it is critical that it remains refrigerated at all times during its transport and storage.

UN Number

UN No. (International)	This product is not dangerous to transport.

UN proper shipping name

Proper shipping name (International)	This product is not dangerous to transport.

Transport hazard class(es)

Transport Labels (International)	This product is not dangerous to transport.

Packing group

Packing group (International)	This product is not dangerous to transport.

Environmental hazards

Environmentally Hazardous Substance No.	
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This product is not dangerous to transport.

15. Regulatory information

US Federal Regulations

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

ACETONE

SARA 313 Emission Reporting

Cyanoguanidine (Dicyandiamide)

HexPly® F155 (MEK/Acetone)

RCRA

Material for disposal should be placed in appropriate containers to avoid potential human and environmental exposure. It is the responsibility of the generator to comply with all federal, state, provincial and local laws and regulations. We recommend that you contact an appropriate waste disposal contractor and environmental agency for relevant laws and regulations. Under the U.S. Resource Conservation and Recovery Act (RCRA), it is the responsibily of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification and to assure proper disposal.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

California Prop 65 Symbol

This product can expose you to chemicals including those listed below, which is [are] known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Inventories

US - TSCA

This product is an article as defined by TSCA and is not required to be listed in the TSCA inventory.

16. Other information

Abbreviations and acronyms used in the safety data sheet

ACGIH American Conference of Industrial Hygienists
ATE Acute Toxicity Estimate
CAS# Chemical Abstracts Service Number
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DOT Department of Transportation
EmS Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA Environmental Protection Agency
GHS Global Harmonized System
HMIS Hazardous Materials Identification System
IATA International Air Transport Association
ICAO International Civil Aviation Organization
IMDG International Maritime Dangerous Goods
Kow Octanol-water partition coefficient
LC50 Lethal concentration to 50% of a test population
LD50 Lethal dose to 50% of a test population
n.o.s. Not otherwise specified
OSHA Occupational Safety and Health Administration
PNEC Predicted No Effect Concentration
PPE Personal Protection Equipment
® Registered Trademark of Hexcel Corporation
RCRA Resource Conservation and Recovery Act
SADT Self-accelerating decomposition temperature
SARA Superfund Admendments and Reauthorization Act
STOT Specific Target Organ Toxicity
(STOT) RE Repeated Exposure
(STOT) SE Single Exposure
TSCA Toxic Substance Control Act
UN United Nations
VOC Volatile Organic Compound
WHMIS Workplace Hazardous Materials Information System

General information

When present in the product, airborne carbon fibers or dust may create electrical short-circuits which could result in damage to or malfunctioning of electrical equipment.

HexPly® F155 (MEK/Acetone)

Issued by	U.S.A. Product Stewardship department
Revision date	8/1/2019
Revision	1.1
Supersedes date	7/19/2018
Hazard statements in full	H225 Highly flammable liquid and vapor. H226 Flammable liquid and vapor. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H312 Harmful in contact with skin. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H320 Causes eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness. H341 Suspected of causing genetic defects. H350 May cause cancer. H351 Suspected of causing cancer. H360 May damage fertility or the unborn child. H373 May cause damage to organs (Hearing organs) through prolonged or repeated exposure. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H401 Toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects. USH01 May form combustible dust concentrations in air.