

To : Yeonho Electronics

Date : September 2, 2019

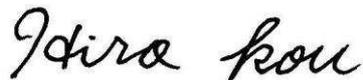
**SUBJECT : Certificate of Chemical Composition of ARLEN E430N(T5)**

Dear Sirs and Madam,

This document is to certify the "Chemical Composition" of "ARLEN E430N(T5)".  
The country of origin is China.

Product Name : ARLEN E430N(T5)		
Chemical name	CAS NO.	Cont.(%)
1,4-Benzenedicarboxylic acid, polymer with 1,6-hexanediamine and hexanedioic acid	25776-72-1	40.0- 50.0
Glass, oxide, chemicals	65997-17-3	30.0
Brominated ethenylbenzene homopolymer	88497-56-7	18.0- 25.0
Sodium Antimonate	15432-85-6	1.5- 4.0
Other compounds	-	1.0
<b>TOTAL</b>		<b>100.0</b>

Very Truly Yours,



**Hiro KOU**

Engineering Plastics Dept.  
Performance Compound Div.  
Mitsui Chemicals, Inc.

**ARLEN (GF-reinforced, flame-proof grades) 3**SDS Number P160380E  
Version 1.0

Revision Date 2016/12/09

Print Date 2016/12/09

**1. PRODUCT AND COMPANY IDENTIFICATION****Product information**

Trade name : ARLEN (GF-reinforced, flame-proof grades) 3

**Company/Undertaking Identification**

Company : Mitsui Chemicals, Inc.  
Street address : Shiodome City Center, 1-5-2, Higashi-Shimbashi, Minato-ku,  
Tokyo, 105-7122, Japan  
Responsible Department : Performance Compound Div.  
Telephone : +81-3-6253-3494  
Telefax : +81-3-6253-4219

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**2. HAZARDS IDENTIFICATION****GHS Classification**

Serious eye damage/eye irritation : Category 2  
Carcinogenicity : Category 2  
Specific target organ toxicity - single exposure : Category 3 (Respiratory tract irritation)  
Specific target organ toxicity - repeated exposure : Category 2 (Lungs, Cardiovascular system)

\*what does not have statement in the above are: not classified, no classification or classification not possible.

**GHS label elements**

Pictogram or Symbol :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H351 Suspected of causing cancer.  
H373 May cause damage to organs (Lungs, Cardiovascular system) 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.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
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

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to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

P337 + P313 If eye irritation persists: Get medical advice/attention.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification : Powdered material may form explosive dust-air mixture.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance/mixture : Mixture

Chemical name (Synonyms)	CAS-No.	Concentration
polycondensation product of hexamethylenediamine and terephthalic acid as main components	-	-
glass fiber	-	-
brominated flame retardant	-	-
antimony compound	-	1.8 - 5.8%
other compounds	-	-

**4. FIRST AID MEASURES**

If inhaled : If you feel unwell, remove to fresh air immediately.  
Get medical attention if cough or other symptoms develop.  
If exposed to excessive levels of fumes, remove to fresh air.

In case of skin contact : Immediately remove contaminated clothing and shoes.  
Flush skin with large amounts of water, clean off with soap and water.  
Get medical attention if symptoms develop.  
If molten polymer contacts the skin, cool immediately with cold water.  
Do not attempt to peel polymer from the skin. Get medical attention for thermal burn.

In case of eye contact : If eye irritation persists, consult a specialist.  
Immediately flush eyes with plenty of water for several minutes.  
Part eyelids with fingers to assure complete flushing.  
Check for and remove contact lenses if easily possible.

If swallowed : Do NOT induce vomiting.  
Never give anything by mouth to an unconscious person.  
Rinse mouth with water.

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- Keep the affected person warm and at rest. Get medical attention immediately.
- Protection of first-aiders : Wear appropriate personal protective equipment such as protective gloves, protective clothing, eye protection, face protection, respirator, safety shoes, etc.
- Notes to physician : Treat symptomatically.
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**5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Water jet, Water mist, Foam, Dry chemical, Carbon dioxide (CO<sub>2</sub>)
- Unsuitable extinguishing media : none
- Specific hazards during firefighting : Emits toxic fumes under fire conditions.
- Special protective equipment for firefighters : Respiratory and eye protection required for fire-fighting personnel.  
Full protective equipment and self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires.
- Further information : Remove all sources of ignition.  
Keep unnecessary and unprotected personnel away.  
Remove containers to safe place if possible.  
Fight fire from an upwind position.  
Keep surrounding areas cool by spraying water.
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**6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Wear appropriate personal protective equipment such as protective gloves, protective clothing, eye protection, face protection, respirator, protective boots, etc.  
Keep unnecessary and unprotected personnel away.  
Keep upwind, evacuate downwind.  
Wear appropriate personal protective equipment as specified in Section 8.  
Evacuate immediate area.  
Warn personnel of health hazard.
- Environmental precautions : Do not flush into sewer, river, or any body of water.  
Product is non-biodegradable; may cause long-term adverse effects in the aquatic environment.
- Methods and materials for containment and cleaning up : Use only non-sparking tools.  
Vacuum or sweep up material and place in a disposal container.  
If the quantity is small, use an electric vacuum cleaner or broom to sweep and collect the product.  
If in molten state, allow it to cool and solidify before proceeding with disposal methods.
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**7. HANDLING AND STORAGE****Handling**

Technical measures : Refer to the "Engineering measures" in Section 8.  
 Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Wear appropriate personal protective equipment. Provide hand and eye wash station near work area. Wash thoroughly after handling.  
 Use only in well-ventilated area. Keep away from heat, sparks, and flame.  
 Use explosion-proof electrical equipment. Take precautions against build-up of electrostatic charges.  
 Use in well-ventilated area. Avoid dust formation.

Advice on safe handling : Do not handle until all safety precautions have been read and understood.  
 Take precautionary measures against static discharge.  
 Avoid dust formation.  
 Do not breathe dust.

Avoidance of contact : Keep containers tightly closed in a dry, cool and well-ventilated place.  
 Keep away from heat, flame, and all sources of ignition.  
 Store in a segregated and approved area.

Hygiene measures : Wash hands thoroughly after handling.  
 Do not eat, drink, or smoke when using this product.

**Storage**

Conditions for safe storage : Store locked up.  
 The floor must be protected from water and impermeable.  
 The inventory location must be fire-resisting. Make the roof from nonflammable materials, and do not install the ceiling.  
 Install appropriate facilities for lighting/ventilating.  
 Store indoors.  
 Ground and bond containers and equipment to prevent build-up of electrostatic charges.

Suitable container and packaging materials for safe storage : Aluminum-lined paper bag

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Exposure Limit Values**

USA. ACGIH Threshold Limit Values (TLV) [2015]

continuous filament glass : TWA 1 fibers/cm<sup>3</sup>  
 fibers 5 mg/m<sup>3</sup> Inhalable fraction  
 antimony compound : TWA 0.5 mg/m<sup>3</sup> as Sb

Engineering measures : Provide safety shower and eye wash station near work area.  
 Use closed system or local exhaust ventilation.

**Personal protective equipment**

Respiratory protection : Respirator with a particle filter

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Hand protection	: Protective gloves
Eye protection	: Safety goggles, Eye shield, Face shield
Skin and body protection	: Protective suit, Safety shoes, Safety helmet, Apron

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**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Physical state	: solid
Form	: pellets
Colour	: colored (Varies by product)
Odour	: characteristic

**Safety data**

pH	: not applicable
Melting point/range	: 310 - 320 °C (Varies by product)
Boiling point/boiling range	: no data available
Flash point	: > 200 °C
Auto-ignition temperature	: no data available
Lower explosion limit	: no data available
Upper explosion limit	: no data available
Vapour pressure	: no data available
Relative vapour density	: no data available
Evaporation rate	: no data available
Relative density	: 1.30 - 1.80
Water solubility	: insoluble
Partition coefficient: n-octanol/water	: no data available
Decomposition temperature	: no data available
Viscosity, kinematic	: no data available

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**10. STABILITY AND REACTIVITY**

Reactivity	: no data available
Chemical stability	: Stable under normal conditions.
Conditions to avoid	: Heat, air, sunlight
Incompatible materials	: no data available
Hazardous decomposition products	: Nitrogen oxides, hydrogen bromide, Antimony oxide
Hazardous reactions	: Dust or vapours may be ignite or explode by static electricity or other ignition sources.

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**11. TOXICOLOGICAL INFORMATION****Product:**

Acute oral toxicity	: Classification not possible
Acute dermal toxicity	: Classification not possible

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Acute inhalation toxicity	: Classification not possible
Skin corrosion/irritation	: Classification not possible Contact with dust can cause mechanical irritation or drying of the skin.
Serious eye damage/eye irritation	: Category 2
Sensitisation	: Respiratory sensitisation: Classification not possible Skin sensitisation: Classification not possible
Germ cell mutagenicity	: Classification not possible
Carcinogenicity	: Category 2
Reproductive toxicity	: Classification not possible
STOT - single exposure	: Category 3(Respiratory tract irritation)
STOT - repeated exposure	: Category 2(Lungs, Cardiovascular system)
Aspiration toxicity	: Classification not possible

**Components:****glass fiber :**

Serious eye damage/eye irritation	: Result: Mild eye irritation
STOT - single exposure	: Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

**brominated flame retardant :**

Acute oral toxicity	: LD50 Rat: > 5000 mg/kg
Acute dermal toxicity	: LD50 Rabbit: > 3000 mg/kg
Acute inhalation toxicity	: LC50 Rat: > 5.2 mg/l Exposure time: 4 h Test atmosphere: dust/mist

**12. ECOLOGICAL INFORMATION****Ecotoxicity****Product:**

Acute toxicity	
Acute aquatic toxicity	: Classification not possible
Chronic toxicity	
Chronic aquatic toxicity	: Classification not possible

**Bioaccumulative potential****Product:**

Partition coefficient: n-octanol/water	: no data available
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**Other adverse effects**

Hazardous to the ozone layer : Not classifiable

**13. DISPOSAL CONSIDERATIONS**

Waste from residues : In accordance with local and national regulations. Dispose of wastes in an approved waste disposal facility. When outsourcing waste treatment, be sure to notify the treatment company regarding the hazards before outsourcing.

Contaminated packaging : Empty the container completely before disposal. Do not reuse the container for any other purpose. Dispose of in accordance with applicable laws and regulations.

**14. TRANSPORT INFORMATION****International transport regulations****IATA**

Not dangerous goods

**IMDG**

Not dangerous goods

**15. REGULATORY INFORMATION****Notification status**

Japan	ENCS:	On the inventory, or in compliance with the inventory.
United States of America (USA)	TSCA:	On the inventory, or in compliance with the inventory.
European Union	REACH:	Contact us for information.
Canada	DSL,NDSL:	All components of this product are on DSL.
Australia	AICS:	Not in compliance with the inventory.
Korea	KECI:	On the inventory, or in compliance with the inventory.
China	IECSC:	On the inventory, or in compliance with the inventory.
New Zealand	NZIoC:	On the inventory, or in compliance with the inventory.
Philippines	PICCS:	On the inventory, or in compliance with the inventory.

**16. OTHER INFORMATION**

Sources of key data used to compile the Safety Data Sheet : In-house data  
Information acquired by literature documentation

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the

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specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

## Appendix

This Safety Data Sheet covers these products :

E430N(T5), E430NHS(J), E430NS(J), E440N, E440NA, E630N, E630NA, E630NR