BUNTING BEARINGS LLC

Material Safety Data Sheet

Version-1.0 Issue Date: 01/07/2019

Trade Name: TSA/BU Series

SECTION 1: Identification of the article and of the company:

1.1 Trade name: TSA/BU Series

1.2 Details of the supplier of the safety data sheet: Bunting Bearings, LLC

1.3 Details of the supplier of the safety data sheet: 1001 Holland Park Blvd., Holland, OH 43528

1.4 Information in case of emergency: 419-866-7000

SECTION 2: Hazards identification

Main Hazards

It is recommended that the inhalation of thermal decompostion products of PTFE be avoided.

Contamination of tobacco products must be avoided as inhalation of PTFE degradation products can result in polymer fume fever.

HF gas may be liberated if the material comes into contact with strong acids.

Para-Aramid Fiber

Prolonged inhalation of fine fibrous dust particles at high concentration can cause lung damage.

TSA material is supplied only in the fully cured and polymerized form of PTFE.

SECTION 3: Composition/information on ingredients

This product is a preparation.

The TSA material is a laminate of steel and bronze, with an impregnant of fillers encapsulated in PTFE, forming the anti-friction layer. Finished products may or may not have a final deposition of tin or copper on steel side.

Low Carbon Steel:

Element	Symbol	Content (%)	CAS No.
Iron	Fe	Balance	7439-89-6
Carbon	C	≤0.15	7440-44-0
Manganese	Mn	≤0.6	7439-96-5
Phosphorus	P	≤0.1	7723-14-0
Sulphur	S	≤0.05	7704-34-9

Bronze:

Element	Symbol	Content (%)	CAS No.
Copper	Cu	Balance	7440-50-8
Tin	Sn	7.0~9.0	7440-31-5

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Zinc	Zn	2.0~4.0	7440-66-6

SECTION 4: First aid measures

4.1 Description of Necessary Measures

Inhalation:

In case of exposure to processing fumes: remove from exposure and keep under medical review for possible development of "Polymer Fume Fever". Following severe exposure the patient should be kept under medical review for at last 48 hours as delayed pulmonary odema may develop.

Eye Contact:

In case of contact with hot material immediately flood the affected area with cold water and obtian immediate medical attention.

Skin Contact:

In case of contact with hot material immediately flood the affected area with cold water and obtian immediate medical attention.

Ingestion:

In the event of this substance being ingested. Do not induce vomiting.Obtain immediate medical assistance.

4.2 Most Important Symptoms/Effects, Acute and Delayed (chronic)

Inhalation: This product as sold/shipped is not likely to present an acute or chronic health effect.

Eye: This product as sold/shipped is not likely to present an acute or chronic health effect.

Skin: This product as sold/shipped is not likely to present an acute or chronic health effect.

Ingestion: This product as sold/shipped is not likely to present an acute or chronic health effect.

4.3 Immediate Medical Attention and Special Treatment:

Treatment is symptomatic.

SECTION 5: Fire-fighting measures

Extinguishing media

Unlikely to ignite except in high heat flux conditions. Combustion or thermal decomption will evolve toxic and corrosive vapours.

Select extinguishing agent appropriate to other materials involved.

Advice for firefighters

Protective equipment: Self-contained breathing apparatus and suitable protective clothing should be

worm in fire conditions.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Suitable protective clothing should be worm when handling.

Environmental precautions: Not required

Methods and material for containment and cleaning up:

Dispose of the collected material according to regulations.

Where appropriate the mateirial may be disposed via a scrap metal merchant.

SECTION 7: Handling and storage

Handling:

Contamination of tobacoo products must be avoided. "Polymer fever" is particularly associated with the smoking of contaminated tobacco products. Wash face and hands before eating, drinking or smoking. Care must be taken to avoid transfer of PTFE particles from any exposed skin or clothing onto materials, which have to be bumt.

Conditions for safe storage, including any incompatibilities

Store in a dry well-ventilated area. Material should be stored at an ambient temperature.

Further information about storage conditions: None.

Specific end use(s): No further relevant information available

SECTION 8: Exposure controls/personal protection

8.1 Occupational Exposure Limits (OELs)

TSA material as sold/shipped in its physical form does not present an inhalation, ingestion or contact hazard, nor would any of the following exposure data apply. However, operations such as high temperature (burning, welding, sawing, brazing, machining and grinding) may produce fumes and/or particulates.

Provide adequate ventilation; including local exhaust ventilation, if appropriate.

8.2 Appropriate Engineering Controls

Provide local exhaust ventilation during thermal processing and machining.

8.3 Individual Protection Measures

Dust respirator

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Respiratory protection is required if there is a risk of exposure to high dust or vapour concentrations

Body protection

Suitable protective clothing should be worm when handling this material, depending upon how the semis are futher processed.

Eye protection

Eye protection should be worn where appropriate, when handing this material.

Protective goggles are recommended, depending upon how the semis are further processed.

SECTION 9: Physical and chemical properties

Appearance: Steel backing with a plain gray polymer overlay.

Form: Solid	Steel melt point: 1450 ℃
Odor: Odorless	Bronze melt point: 1450 ℃
Polymer melting point: 327 ℃	

Danger of explosion: Product does not present an explosion hazard.

Water Solubility: Insoluble.

SECTION 10: Stability and reactivity

Conditions to avoid:

This material is stable under normal conditions of storage and use.

Materials to avoid:

Strong acids or bases.

Thermal Decomposition:

Temperatures greater than 400℃.

Hazardous decomposition products:

At temperatures above 400℃ thermal decomposition products are toxic and corrosive. Chemicals produced during thermal decomposition are highly dependent upon temperature and conditions but include fluorinated olefins, carbonyl fluoride and hydrogen fluoride and hydrogen fluoride.

The inorganic filler may liberate harmful gas in contact with strong acid.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity:

Primary irritant effect:

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On the skin: No irritant effect.

On the eye: No irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

At elevated temperatures (above 400℃), small quantities of toxic fumes can be produced an the direct inhalation of these fumes can cause "Polymer fume fever" which results in influenza like symptoms. The illness may not manifest it's self for some hours. The effect of this illnes subside without after effects within 24~48 hours. Such fumes can arise from PTFE particles picked up on the end of a cigarette. Therefore smoking is prohibited where TSA is being machined.

Avoid contact with the eyes. Should particle come into contact with the eyes, wash the eyes with copious amout of water for a minimum period of 10 minutes.

When used and handled according to specifications, the article does not have any harmful effects to our experience and the information provided to us.

SECTION 12: Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability:

This material is resistance to biodegradation.

Behavior in environmental systems

This material is considered immobile in its physical state.

Additional ecological information

This material is considered harmless to the enviroment.

Other adverse effects:

No further relevant information available.

SECTION 13: Disposal considerations

Collect for recycling or recovery, if possible. The recycler must be made aware of the hazard associated with the incineration of PTFE. The recycler shall ensure the proper precautions are taken. Local and national requirements must be observed when disposing of this material.

SECTION 14: Transport information

This product is not classified. No special requirement for transportation.

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SECTION 15: Regulatory information

In some countries the work place exposure to respirable fibre shaped particles that can be formed during abrasive processing of the para-aramid fibre and PTFE contained in TSA is regulated.

10mg/m^3, 8 hour TWA, total dust; 5mg/m^3, 8 hour TWA, respirable dust.

SECTION 16: Other information

This information is taken from sources or based upon data believed to be reliable. However, Bunting Bearings, LLC makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.