MATERIAL SAFETY DATASHEET

Fire Retardant Nickel/Graphite Loaded Silicone - UL94V0

SECTION 1 PRODUCT IDENTIFICATION

Product Name: Fire Retardant Nickel/Graphite in silicone – ES-Q-FR (EC-Q-FR)
General Name: Conductive Elastomer

SECTION 2 COMPOSITION INFORMATION

This product is a cured silicone material. The ingredients listed below are encapsulated within the matrix, therefore, no exposure to these materials is expected during proper use/handling of this product.

Exposure Limits:

Ingredients	Weight	OSHA PEL TWA	ACGIH /TLV / TWA
Silicone	<35	Not Established	Not Established
Synthetic Graphite 7782-42-5	<20	15 mg/m3 total dust, 5 mg/m3 repairable dust	2 mg/m3
Nickel 7782-42-5	<25	1 mg/m3 as Ni	1 mg/m3 as Ni
Hydrated Alumina 1344-28-2	<7	15 mg/m3 total dust, 5 mg/m3 repairable dust	10 mg/m3
Titanium Dioxide 13463-67-7	<5	15 mg/m3 total dust, 5 mg/m3 repairable dust	10 mg/m3
Silica, Crystalline Quartz 14808-60-7	<5	See Quartz formula 1910.1000	0.1 mg/m3 (repairable fraction)

SECTION 3 HAZARDS IDENTIFICATION

Emergency Overview: This material poses little or no immediate hazard. Thermal decomposition and burning may generate toxic by-products. Refer to other sections of the MSDS for more detailed information.

Routes of Entry: Skin contact.

P & P Technology
P & P Technology, Unit 9, Hoblongs Industrial Estate, Chelmsford Road, Dunmow, Essex, CM6 1JA, UK
T: 44 (0) 1376 550525 F: +44 (0) 1376 552389 www.p-p-t.co.uk

Acute Effects

Eye: Nonirritating under normal conditions of use.

Skin: Nonirritating under normal conditions of use.

Inhalation: Nonirritating under normal conditions of use.

Ingestion: No information available.

Chronic Effects: No data is available for this product.

Special Condition Effects:

This product is a cured silicone. The ingredients are encapsulated within the matrix, therefore, no exposure is expected during use and handling of this product. However, if the product is processed in a manner that generates dusts, mists or fumes then the toxicity information below would apply:

> The National Toxicology Program (NTP) has listed nickel as reasonably anticipated to be a carcinogen. The International Agency of Research on Cancer (IARC) has concluded that there is sufficient evidence that nickel and nickel compounds, as a group, are carcinogenic in humans. Epidemiological studies of workers exposed to nickel powder and to dusts and fumes generated in the production of nickel alloys and of stainless steel have not indicated the presence of a significant respiratory cancer hazard.

Aggravated Medical Conditions: No data is available for this product mixture.

SECTION 4 FIRST AID MEASURES

Handle in accordance with good industrial hygiene and safety practices by avoiding unnecessary exposure and by removing material from the eyes, skin and clothing.

Eye: No first aid should be necessary.

Skin: No first aid should be necessary.

Inhalation: No first aid should be necessary.

Ingestion: No first aid should be necessary.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point:	Not applicable.
Autoignition Temp:	Not applicable.
Flammability Limits:	Not applicable.
Extinguishing Media:	Carbon dioxide, water, water foam, dry chemical.

Fire Fighting Procedures:	Use self-contained breathing apparatus and protective clothing. If large quantities of material are involved, evacuate area and fight fire from a safe distance.
Unusual Fire Hazards:	Decomposition and combustion products may be toxic.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill response operations must be conducted in accordance with the provisions of 29 CFR 1910.120. Observe all recommendations identified in Sections 5 and 8.

Procedures: Sweep up and place into containers for disposal.

SECTION 7 HANDLING AND STORAGE

Handling: No special precautions.
Storage: No special precautions.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

The recommendations described in this section are provided as general guidance for minimizing exposure. Because usage conditions vary with customer applications, specific exposure controls should be developed by a person knowledgeable in the intended usage condition and equipment.

Ventilation: Local exhaust ventilation is not required. However, if the product is processed. in a manner that generates dusts, mists or fumes, provide ventilation to control airborne levels of Section 2 ingredients below their exposure limits.

Eyes: Wear safety glasses with side shields if operations generate dust, particles, etc.

Skin: Wear protective gloves to prevent skin contact. Wash thoroughly after handling and before eating or smoking.

Inhalation: Respiratory protection is not required. However, if the product is processed. in a manner that generates dusts, mists or fumes, conduct air monitoring to assess the need for respiratory protection.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Grey solid article.
Specific Gravity: Not available.
Boiling Point: Not applicable.
Vapor Pressure (25°C): Not applicable
Vapor Density: Not applicable.
Solubility in Water: Insoluble.
Volatile Content (Wt%): Negligible.

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Will not occur.
Condition to Avoid:	None known.
Incompatibilities:	None known.
Hazardous Decomposition:	Thermal decomposition and burning may produce carbon monoxide, carbon dioxide, silicon dioxide, metal oxides and traces of formaldehyde, benzene and incompletely burned carbon products.

SECTION 11 TOXICOLOGY INFORMATION

All available toxicology information has been provided in Section 3 of this document.

SECTION 12 ECOLOGICAL INFORMATION

No data on ecological effects is available.

SECTION 13 DISPOSAL INFORMATION

Since regulations vary, consult applicable regulations or authorities before disposing of this material.

SECTION 14 TRANSPORTATION INFORMATION

This product is not regulated as a hazardous material by the U.S. Department of Transportation.

SECTION 15 REGULATORY AND MISCELLANEOUS INFORMATION

TSCA: All components of this product are listed on the TSCA inventory.

SARA 313 Chemicals: Nickel 7440-02-0