FSPE – Specifically designed for Flame Spray Systems

General description

FSPE has been specifically designed to meet the criteria of ISO 21809-3 as well as some of the properties for Class A and Class B coatings according to ISO 21809-1.

FSPE is based on an alloy of functionalized polyolefins for application onto field joints, bends, fittings and pipes. It is mainly applied via flame-spray and may also be applied by flock spray or sintering.

Typical uses

Coating of field joints, pipes, bends, and fittings. FSPE can be applied to clean steel surfaces, over a tie-layer or to partially cured epoxy.

Typical properties of the powder

Coverage (100% efficiency)	0.33 m^2 /Kg at 3 mm
Particle Size	95% less than 500 microns
Bulk Density (at rest)	0.32 g/cm^3
Packaging	20 kg boxes or paper sacks

Handling and storage

Stored between 0-35°C, preferably 10-25°C, in a clean dry area and out of sunlight, the material should not deteriorate. The product stability is 36 months from the date of manufacture. In the interest of good housekeeping, old stocks should be used first.

Common to all coating powders, there may be the likelihood of agglomerate formation during transportation and storage. The coating powder can be sieved to break up the agglomerates and therefore return the powder to its original condition; this does not affect the quality of the powder. The accumulation of powder particles is a physical phenomenon and may occur as a result of compaction or when cold powder, below 10°C, is brought into direct contact with warm humid air. In this latter situation the powder, still sealed, should be given time to warm up to the ambient temperature before use.

Health and safety

FSPE is supplied as a finely divided powder. While there are no known health hazards associated with FSPE, normal handling precautions for dealing with fine organic powders should be taken - i.e. excessive dust generation and inhaling of the powder should be avoided. Facilities may be required for removing excess dust from the working area during the coating of certain difficult items.

As with all polymeric powders, the material can ignite if brought into contact with a high temperature source or ignition - particularly in the fluidized condition.

Reference should be made to the respective GHS Data Sheet, available on request.

Guide to typical coating conditions

Application
FSPE can be applied by flock-spray, sintering or flame spray.

We recommend that the instructions from the flame spray equipment supplier should be followed. For optimum properties when flame-spraying, the product should be thoroughly cooled by quenching to ambient temperature immediately following application.

The method of application may affect product properties. Prior to any production representative test pieces should be coated to ensure that applied product meets performance requirements. It is advised that the product properties for oil and gas projects are determined at the PQT.

Recommended Pretreatment If Applying Direct to Steel:
Ensure metal is clean by thorough degreasing and removal of mill scale. To get the full benefits of the material, the metal should be shot / grit blasted to at least Swedish SA 2½ or an equivalent standard.

Typical properties of the material

Color		Black
Specific Gravity (base resin)		0.92 – 0.97 g/cm3
MFI	ASTM D-1238, 190°C, 2.16 Kg Load	6 to 10 g/10 min.
Melting Point	By DSC	>125°C
Hardness	Shore D	>50
Pencil Hardness		H/B
ESCR	ASTM D1693	>1000 hrs.

Typical properties of the coating

Property	Test Method	Result
Elongation at Break (500mm/min)	ISO 527-2	>600 %
Tensile Strength at Yield (500mm/min)	ISO 527-2	9.5 MPa
Tensile Strength at Peak (500mm/min)	ISO 527-2	11 MPA
Vicat Softening Point	ISO 306	97°C
Indentation (at 23°C)	ISO 21809-1	0.13mm
Indentation (at 80°C)	ISO 21809-3	0.45mm
Water content	ISO 8130-7	<0.05%
Hardness Shore D	ISO 868	>50
ESCR (50°C, F50, Cond. A)	ASTM D1693	>1000 hours
Oxidative Induction Time (at 220°C)	ISO 11357-6	>60 min.

Typical properties after flame spray process & quenching

Property	Test Method	Result
Oxidative Induction Time (at 220°C)	ISO 11357-6	>50 min.
Impact Strength at 23°C	ISO 21809-1	>7J/mm
Impact Strength at -20°C	ISO 21809-1	>7J/mm
Elongation at Break (100mm/min)	ISO 527-2	>400%
Product stability during process	ISO 1133	Δ MFR≤ 20%

FSPE coating properties, after application, should be determined during the PQT since process parameters can affect the material.

Quality

The manufacturer is committed to the manufacture and supply of a wide range of thermoplastic coating powders. This service is backed by the unrivalled experience of over 60 years of powder coating application. With a policy of continuous improvement to its range of products, they reserve the right to alter or amend any item. Stringent quality control procedures are carried out at every relevant stage of manufacture and they operate a quality management system approved by BSI in accordance with ISO 9001:2008.

Disclaimer

The information given here is, to the best of our knowledge, true and accurate.

Product and item design, pre-treatment, coating conditions, quality assurance and conditions of product end use are among the factors that affect performance of the coated products and are outside our control.

Conditions under which our materials may be used are beyond our control. The suitability for application and performance of finished goods coated with FSPE material is the sole responsibility of the customer and end user.

We expressly deny specific or implied warrantees including warrantees for fitness for a particular use or purpose.

U-Coat Technologies, Inc.
2075 Lake Avenue SE
Largo, FL 33771
727-322-4005 – Robert.Langhans@U-Coat.com