

- ▶Industrial rubber products.
- ▶Flame retardant materials for railway vehicles.
- ▶Satisfies the EN45545-2 standard.

FR-120-EN1

We have designed and manufactured the flame-retardant rubber products for a long time, which has been used for the railway vehicles in particular.

In 2018, the flame-retardant rubber products used for European railway vehicles will be required to meet the " EN standard " .

Firstly in Japan, we have developed the flame-retardant rubber products, "FR-120-EN1", which meets the " EN standard " .

"FR-120-EN1" is based on EPDM rubber and classified as HL3 in EN45545-2 R22.

◆ Properties

Original Properties Hardness (Durometer A) Tensile strength (MPa) Elongation (%)	 70 (68) 8.9 680
Fire Testing to Railway Components [EN45545-2] Oxygen index [EN ISO 4589-2(T01)] Smoke density [EN ISO 5659-2(T10.03)] Maximum specific optical density (3 times) Thickness: 1mm Thickness: 25mm Toxicity [Annex C Method2 [NFX70-100] (T12)] Toxicity Index (CITNLP)	 35.8 57.8 , 56.8 , 56.2 44.7 , 68.2 , 90.2 0.13

* The hardness is measured after 1 second, and value in () is a hardness after 3 seconds .

Environmental consideration

IRUMA corresponds to the RoHS and ELV controls, which are the world standards now.

Furthermore, we satisfy the voluntary standards of the domestic electronics manufacturers, that requires Cd 5ppm or less and other 100ppm or less.

(RoHS directive : Restriction of the use of certain hazardous substances directive)
 (ELV directive:End of life Vehicles directive)

◆ Standard dimensions of FR-120-EN1

Thickness	width	length
1mm~3mm	1m	20m
4mm~10mm	1m	10m

*Please contact us concerning other thickness and length.

*Please contact us about the molded articles.

◆ Other products for railway vehicles

Products	FR-100 A60	FR-100-VU	FR-120-SP
Original Properties			
Hardness (Durometer A) *	60 (59)	60 (59)	70 (69)
Tensile strength (MPa)	9.5	10.4	9.3
Elongation (%)	450	560	600
Acquired specifications			
ASTM standard		ASTM C 1166 ASTM E 162 ASTM E 662 SMP-800C BSS7239	ASTM C 1166 ASTM E 162 ASTM E 662 SMP-800C
British standard			BS 476-6 BS 476-7 BS 6853 AnnexB BS 6853 AnnexD
Base material	CR	CR	EPDM

* The hardness is measured after 1 second, and value in () is a hardness after 3 seconds .

- ◇ All statements, information and data given herein are believed to be accurate and reliable, but are presented without guarantee, warranty or responsibility of any kind, expressed or implied.
- ◇ The contents in this catalog might be changed for performance improvement or other reasons without prior notice.
- ◇ Materials may discolor after contact with FR-120-EN1.
- ◇ For disposal, conform to the applicable laws regarding industrial wastes such as 'Waste Disposal and Public Cleansing Law' and dispose as industrial waste.

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