High Zirconia Alkali-resistant Glass Fibre

NEG ARG FIBRE

For Glass Fibre Reinforced Concrete (GRC)
and Asbestos Replacement Products

Japanese Page

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NEG ARG FIBRE

NEG ARG Fibre, manufactured by Nippon Electric Glass Co., Ltd. (NEG) is used throughout the world as a reinforcement for cement composites, including asbestos replacement products.

Four Advantages

- NEG ARG Fibre is a high-quality alkali-resistant glass fiber containing a high percentage of zirconia (ZrO_2), which enhances its resistance to alkali in cement composites.
- NEG ARG Fibre can be used as an asbestos replacement.
- NEG ARG Fibre is available in a variety of strand lengths and sizing to meet specific applications and processing requirements.
- NEG ARG Fibre has excellent workability characteristics.

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What is ARG?

NEG ARG Fibre is a high-quality alkali-resistant glass fiber which is designed to reinforce cementitious and other alkaline matrices. NEG ARG Fibre has non-combustibility characteristics, corrosion resistance, and also has high tensile strength like piano wire.

Properties of NEG ARG Fibre

NEG ARG Fibre properties are highly stable because of its unique glass composition and manufacturing process using our own direct melt furnace.

Tables below show general properties and chemical resistivities of NEG ARG Fibre.

Property	Unit	
Thermal expansion coefficient	$X10^{-7}/^{o}C$	90
Softening point	^{o}C	830
Density	g/cm^3	2.7
Tensile strength	GN/m^2	1.4
Young's Modulus	GN/m^2	74
Strain to failure	%	2

Alkali resistivities

Weight loss (Saturated cement solution, 80°C X 200HR)	%	NEG ARG Fibre: 0.8 E Glass Fiber : 10.5
Tensile strength retention*	%	NEG ARG Fibre: 75 E Glass Fiber : 14

Acid resistivities

Weight loss (10% HCl, 80°C X 90HR)	%	NEG ARG Fibre: 1.6 E Glass Fiber : 42.9
Weight loss (10% H_2SO_4, 80°C X 90HR)	%	NEG ARG Fibre: 1.2 E Glass Fiber : 42.0

*Tensile strength retention rate (%) of cement paste applied strand, held at 50°C for 300 hours in 100% RH

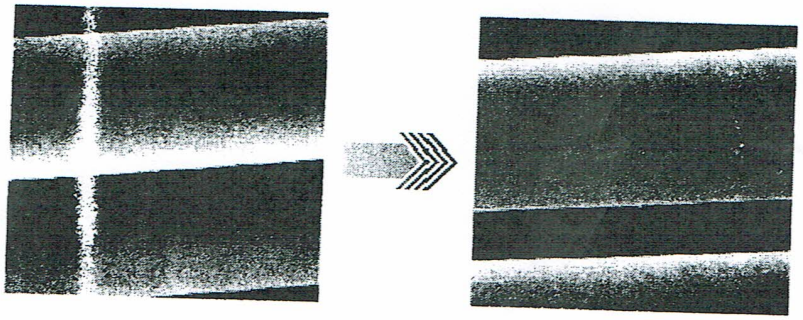
NOTE: These values are only for reference

Alkali resistivity of NEG ARG Fibre

The alkali resistance of glass fiber is determined mainly by the zirconia (ZrO_2) content in the glass. The higher the ZrO_2 content, the greater the alkali resistance.
As NEG ARG Fibre contains ZrO_2 higher than any other marketed glass fiber, NEG ARG Fibre shows better alkali resistivity than them.
The Figures below show comparison of alkali erosive attack in NEG ARG Fibre and E Glass Fiber.

Comparison of alkali erosive attack in NEG ARG Fibre and E Glass Fiber (SEM-photographs)

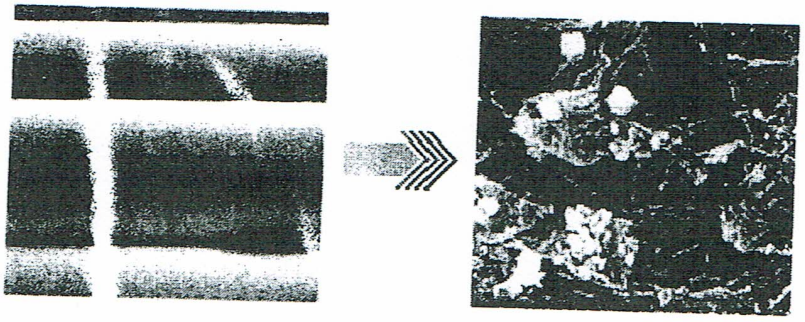
NEG ARG Fibre



As manufactured

Held at 80°C for 200 hours in saturated cement solution

E Glass Fiber



As manufactured

Held at 80°C for 200 hours in saturated cement solution

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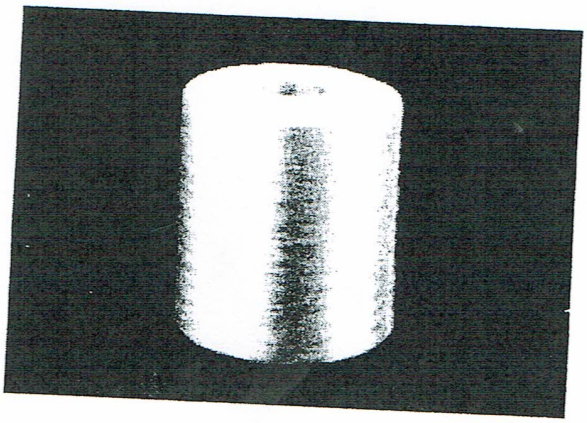
Product Range of NEG ARG FIBRE

Continuous Roving

Continuous Roving is made by gathering 100 to 200 glass filaments into a strand, then winding dozens of strands to form a cylindrical package. Continuous Roving is best suited to the spray process and is used in a wide range of products in construction, civil engineering, etc.



[Characteristics of Continuous Roving]

- Roving products have excellent mortar wet-out characteristics.
- Roving products have excellent chopping characteristics, and stable spray process can be carried out regardless of humidity and temperature condition.

[Process for Continuous Roving]

Spray-up, Centrifugal casting

[Standard specifications of Continuous Roving]

Code	Roving tex (tex)	Strand tex (tex)
AR2500H-200	2500	80
AR2500H-103	2500	80
AR2500H-530X	2500	80

AR2500H-350Y	2500	40

Concerning other specifications' Continuous Roving, please contact us.

--Package--

Shrink-film, palletize

--Order Number Key--

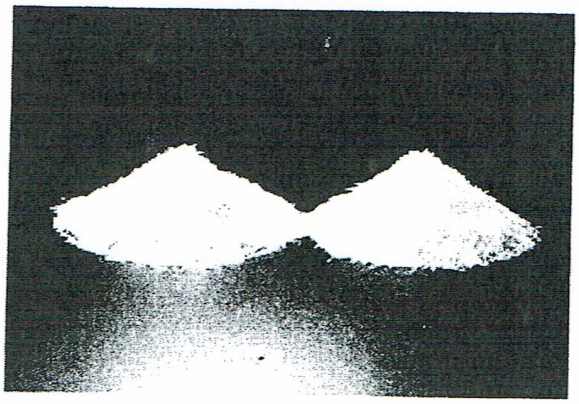
(Ex.) : AR2500H-200

A	Type of glass (Alkali resistant glass)
R	Type of product (Roving)
2500	Roving tex (tex*)
H-200	Sizing

*tex : g/1000m

Chopped Strands

Chopped Strands are produced by cutting strands into required length. There are two types of Chopped Strands:



High Integrity Type
A high integrity non-filamentized strand to meet the requirements of the conventional "premix" products

Water Dispersible Type
A high filamentized dispersible strand for use in the Hatschek and Magnani

process for asbestos free
products

[Characteristics of Chopped Strands]

- High integrity type Chopped Strands disperse as strands in a matrix of cement mortar.
- Water dispersible type Chopped Strands disperse into filaments in a matrix of calcium silicate or cement slurry.

[Process for Chopped Strands]

High Integrity Type: Premix-casting, Premix-press

Water Dispersible Type: Hatschek, Magnani, Premix-casting

[Standard Specifications of Chopped Strands]

Type	Code	Strand Length (mm)
High Integrity Type	ACS**PH-901X	9, 13, 19, 25
	ACS**H-530X	13, 25
	ACS**H-350Y	9, 13, 25
	ACS**H-350Z	13
Water Dispersible Type	ACS**S-750	6, 9, 13, 25

** : Strand length in mm

Concerning other specifications' Chopped Strands, please contact us.

--Package--

Polyethylene bag, palletize

--Order Number Key--

(Ex.) : ACS13PH-901X

A	Type of glass (Alkali resistant glass)
CS	Type of product (Chopped Strands)
13	Strand length (mm)
P	Filament diameter (P: 18 micron, Non: 13.5 micron)
H-901	Type of Sizing
X	Number of filaments per strand* (High integrity type only)

* X: 200 filament/strand
Y: 100 filament/strand
Z: 50 filament/strand
Non: 200 filament/strand

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