

Title (en)

Fire retardant and heat resistant yarns and fabrics treated for increased strength and liquid shedding

Title (de)

Flammenhemmende und hitzebeständige Garne und Stoffe mit Behandlung für erhöhte Beanspruchbarkeit und Flüssigkeitsabweisung

Title (fr)

Produit ignifuge et fils et tissus résistants à la chaleur traités afin d'augmenter la résistance et la perte de liquide

Publication

EP 1847638 A2 20071024 (EN)

Application

EP 07006546 A 20070329

Priority

- US 78685306 P 20060329
- US 69124807 A 20070326

Abstract (en)

Fire retardant and heat resistant yarns and fabrics include an inner core comprised of oxidized polyacrylonitrile encapsulated by an outer shell comprised of a liquid-resistant and strengthening polymer material. The liquid-resistant and strengthening polymer material includes one or more types of cured silicone polymer resin. A fluorchemical may be at least partially impregnated into the inner core prior to applying the liquid-resistant and strengthening polymer material in order to further enhance the liquid shedding properties of the yarns or fabric. Because the silicone polymer resin only encapsulates the yarn, but does not form a continuous coating over the whole fabric, the treated fabric is still able to breath through pores and spaces between individual yarn strands that make up the fabric. The liquid-resistant and strengthening polymer material increases the strength, abrasion resistance, durability and liquid and gel shedding capability of the fire retardant heat resistant yarn or fabric.

IPC 8 full level

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CPC (source: EP US)

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Citation (applicant)

- US 6287686 B1 20010911 - HUANG TSAI JUNG [TW], et al
- US 6358608 B1 20020319 - HANYON WILLIAM J [US], et al
- US 4865906 A 19890912 - SMITH JR W NOVIS [US]
- US 6800367 B2 20041005 - HANYON WILLIAM J [US], et al
- US 2004091705 A1 20040513 - HANYON WILLIAM J [US], et al
- US 5004643 A 19910402 - CALDWELL J MICHAEL [US]

Cited by

ITMI20100278A1; CN113039065A; CN113195815A; ITMI20100279A1; CN109629060A; WO2020100067A1; WO2020100066A1; WO2023178293A1; TWI551229B; EP2569472B1

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Designated extension state (EPC)

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