

AGC

AsahiGuard
E-SERIES

A new generation of fluorinated
water/oil/alcohol repellent



bluesign®

SYSTEM
PARTNER

AGC Chemicals
Chemistry for a Blue Planet

AGC - THE FIRST COMPANY TO FULLY CONVERT TO PFOA-FREE* WATER & OIL REPELLENT

FLUOROTELOMER BASED C6 TECHNOLOGY

AsahiGuard E Series is a fluorinated water and oil repellent providing sustainable alternatives for many applications, including paper packaging, textiles, apparel, non-wovens, natural and synthetic leathers and home furnishings based on proven AGC C6 chemistry.

AsahiGuard E-Series offers high performance properties with improved environmental and biological profiles.

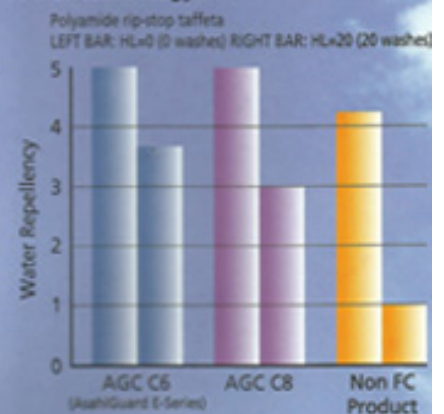
Products in the AsahiGuard E-Series range are PFOA-free* (free of perfluorooctanoic acid) (* at or above detection limits)

What is C6?

Alternative short-chain C6 PFC versus long chain C8 PFC

- C6 fluorinated polymers are proven safe for their intended use.
- Evaluated by industry and regulators who provide data showing that they are safe and effective.
- C6 fluorinated polymers cannot break down to form PFOA or PFOS.
- AGC switched entirely to C6 based fluorochemistry from C8 fluorochemistry in 2012, which was 3 years ahead of the Environmental Protection Agency's 2010/2015 PFOA Stewardship Programme's timetable for the phase-out.
- Innovative AGC C6 WOR technology.
- Full product range to meet all performance demands.
- Continued C6 based product development and performance innovation.
- AsahiGuard E-Series adds value and performance for advanced textiles.

C6 from AGC performs better than other technology



Conditions:
Fluorocarbon (2% solid) with Block Isocyanate, Melamine Resin and Catalyst 1d-1n, Drying 120 seconds @110°C, Curing 60 seconds @170°C
Evaluation:
Water Repellency (ISO4620:2012 (Spray Test))
Home Laundry (HL) JIS1052:2009 6.2.1(a) C method, Line Drying before Evaluation



Industrial Workwear



AsahiGuard E-Series is ideal for tough and durable coatings for workwear in contact with oil and dirt such as in the automotive and chemical industries. Fabrics made using AsahiGuard are comfortable to wear and highly durable for industrial laundering. Not only clothing but also accessories such as gloves, work boots and shoes can be protected with AsahiGuard.

AsahiGuard E Series is not only used for technical textiles in applications like automotive noise insulation and the interior of car roofs, but also for automotive and industrial parts, as well as air and oil filters.



Outdoor Leisure & Sportswear



AsahiGuard E-Series provides a waterproof coating for outerwear and footwear designed for activities such as skiing, rambling, mountaineering and sailing.

These waterproof characteristics mean it is widely used on tents, awnings and canopies to give protection from the elements.



Medical, Emergency Services, Police and Army



Offering water, oil and alcohol repellency AsahiGuard is suitable for use on operation scrubs, medical gowns, surgical drapes, surgical face masks, laboratory wear and items that have to be sterilised in the medical industry.

AsahiGuard is used on durable yet lightweight fabrics in the emergency response and military sectors.

Those working in demanding environments need the protection of tough durable, waterproof fabrics and AsahiGuard fits the bill.



Food Packaging

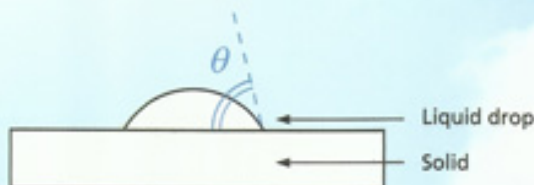


AsahiGuard can be used either at the wet end or the size press end in paper production for imparting grease proof performance to paper products. It is used in many applications in the food and drinks packaging industry. It is unscented and gives a high quality, food contact use approved, non-stick, breathable barrier to water, oil and grease and offers added durability to paper, board and moulded fibre products.

Typical applications include fast food boxes, bags and wrappers, paper tableware, dry pet food packaging, paper trays and containers.



Surface Tension - Water and Oil Repellency



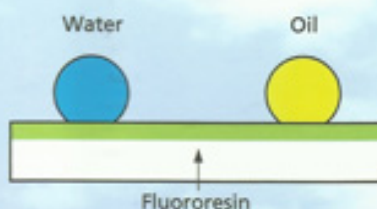
Whether an object tends to become wet or not is determined by its surface tension. When a liquid touches a solid surface it is repelled to form beads if the surface tension of the liquid is larger than the surface tension of the solid. The solid becomes wet if its surface tension is larger than the surface tension of the liquid.

Surface Tension of Fabric >
Surface Tension of Water



Fabric becomes wet because its surface tension is higher than that of water.

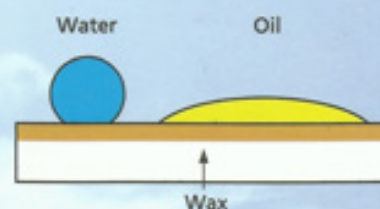
Surface Tension of Water >
Surface Tension of Oil >
Surface Tension of Fluororesin



The surface tension of fluororesin is very low, therefore fluororesin repels water and oil.

AsahiGuard has particularly low surface tension.

Surface Tension of Water >
Surface Tension of Wax >
Surface Tension of Oil



Wax is used as a water repellent because of its low surface tension, however wax does not repel oil, since oil has a lower surface tension.

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Grade Range

Aqueous Emulsion type

Product name	Solid Content	Ionic Character	Principal Use	Product Properties
AG-E061	20%	Mildly Cationic	Clothing, Sports/Outdoor Wear	AG-E061 is suitable for a broad range of applications and may be used for either synthetic or natural fibre.
AG-E082	20%	Mildly Cationic	Clothing, Sports/Outdoor Wear, Auto Parts, Industrial Materials	AG-E082 yields excellent water and oil repellency as well as a stain removability on a wide range of fabrics.
AG-E092	20%	Mildly Cationic	Clothing, Sports/Outdoor Wear	Fabrics processed with AG-E092 have a soft texture and good water and oil repellency. AG-E092 may be used for either synthetic or natural fibres.
AG-E400	20%	Mildly Cationic	Clothing, Sports/Outdoor Wear	AG-E400 gives a moderate water repellency for natural and/or synthetic fibres.
AG-E500D	30%	Mildly Cationic	Clothing, Fashion Wear, Sports/Outdoor Wear	AG-E500D yields excellent water repellency and gives a soft texture to synthetic fibres - even under adverse conditions such as heavy rain.
AG-E300D	30%	Nonionic	Auto Parts, Industrial Materials	AG-E300D is compatible with a variety of waterborne dispersion resins and other additives so is suited to a wide range of applications.
AG-E550D	30%	Nonionic	Clothing, Sports/Outdoor Wear, Industrial materials, Medical Care, Hygiene Products	AG-E550D has better compatibility with a variety of additives and offers excellent and durable water and oil repellency on various types of textiles, particularly those made of synthetic fibres. AG-E550D also imparts excellent liquid repellency to various types of non-wovens.
AG-E600	25%	Amphoteric	Medical Care, Hygiene Products	AG-E600 can impart superior alcohol / water repellency and hydrostatic head performance to polyolefin non-wovens.
AG-E700D	30%	Mildly Cationic	Clothing, Outdoor Wear, Awnings	AG-E700D offers excellent and durable water and oil repellency on synthetic fibres - even under adverse conditions such as heavy rain. It is also suitable for breathable coating use.
AG-E904	20%	Mildly Cationic	Clothing, Work Wear, Medical Care, Formal suit	AG-E904 is an oil repellency enhancer in conjunction with other E-Series products such as AG-E500D for example.