

The Global Market for Anti-Fog Coatings and Films 2023-2033

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Abstracts

Fog formation on surfaces is a major problem in optical systems, such as the lenses and mirrors found in glasses, swimming goggles, camera lenses, binoculars, etc. This undesirable phenomenon reduces the effectiveness of light transmittance and therefore the optical surface and material efficiency. The utilization of advanced surface coating technologies can be used to address a wide variety of these problems. Examples include:

Cleaning optical surfaces is time consuming, expensive, or impossible.

Fingerprints negatively impact the performance of optics.

Functional issues due to liquid behaviour on surfaces.

Contamination and fouling materials negatively impact optical behaviour.

Improved adhesive/bonding characteristics are desired on optical surfaces.

Surface is not lubricous enough.

Wettability of an optical surface is not ideal.

Fogging & moisture build up negatively impact optical performance.

Anti-fog coatings are also known as non-mist coatings and their use have grown in use in eyewear and headgear in the last few years. Fogging by moisture condensation on

transparent substrates presents a major challenge in several optical applications that require excellent light transmission characteristics, such as eyeglasses and vehicle windshields, and can lead to serious hazards involving in blurred vision, light scattering, energy consumption and safety hazard during the usage process of transparent glass and plastics. These problems limit the uses of transparent polymeric materials. Anti-fogging additives are also widely used in food packaging films.

Their development has accelerated though breakthroughs in the use of inorganic materials such as TiO₂, or SiO₂, polymers containing polar functions such as hydroxyl (OH), carboxyl (COOH), and ester groups (COOR), and the textured or porous surfaces.

Applications that benefit from anti-fog treatments include:

eyewear (e.g., safety goggles, face shields).

optical instruments (e.g., cameras, microscopes, endoscopic instruments).

externally located gauges and signs.

food packaging.

visors or sport goggles.

display screens (e.g., computer monitors, mobile device displays).

military helmets.

photovoltaic modules.

car windshields and lamp casings.

There are two main types of anti-fog coatings:

Hydrophobic and superhydrophobic coatings that repel water, making it bead and run off of the lens.

Hydrophilic and superhydrophilic coatings that form a thin coating of water over the lens.

Combinations of both have also been developed.

Report contents include:

Anti-fog coatings technology assessment.

Global revenues for anti-fog coatings and films 2019-2033, by market.

Market challenges.

Market drivers and trends in anti-fog coatings and films.

Markets for anti-fog coatings and films including Automotive, solar panels, healthcare and medicine, display devices and eyewear (optics), food packaging and agricultural films.

39 Company profiles. Companies profiled include Aculon, Inc., Akzo Nobel, Clariant AG, Daikin Industries, Ltd., Hydromer, Inc, Nano-Care Deutschland AG, Natoco Co., Ltd., NEI Corporation and many more.

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