GASIL® Anti-Blocking Silicas.
The Pure Way to High Clarity Film
GASIL®: The Pure Way to High Clarity Film

World Class additives for the polymer film industry giving advanced solutions for high clarity film

GASIL® ANTI-BLOCKING SILICAS FOR FILM HANDLING APPLICATIONS

Incorporation of small quantities of a Gasil® anti-blocking silica into a film formulation creates micro-roughness at the surface of the film. This reduces or eliminates blocking without compromising the balance of physical and optical properties of the film. High clarity and thin polyolefin, polyester and polyamide films are inherently prone to “blocking.” Blocking is the tendency of opposite film faces to adhere to each other and is most prevalent during film winding operations. Unless remedied, blocking causes severe handling problems during film fabrication and final conversion/packaging applications.

TECHNICAL SUPPORT

PQ offers a high standard of technical and analytical service to ensure optimum performance of its products. Contact our Technical Team via email: techsupport@pqcorp.com
THE BENEFITS OF GASIL® ANTI-BLOCKING SILICAS

High efficiency
Gasil® anti-blocking silicas have accurately controlled particle size, porosity and bulk density characteristics. The anti-blocking effect is instantaneous after film formation.

Colour generation
Gasil® anti-blocking silicas are manufactured from high purity, synthetic feedstocks. This ensures that the products contain low levels of trace metal contaminants and provides excellent non-yellowing performance.

Film quality
Gasil® anti-blocking silicas have a minimal effect on mechanical properties, allowing smooth films with excellent scratch resistance to be produced. A high film gloss is maintained and films containing Gasil® anti-blocking silicas are not subject to scuffing when rubbed together. Finished films have excellent printability and ink adhesion.

Special approvals
Gasil® anti-blocking silicas have FDA & EU Food Contact Approval, conform to the requirements of the JHOSPA and are Halal and Kosher certified.

Clarity
The refractive index of Gasil® anti-blocking silicas is comparable to that of polyolefin and polyester resins, allowing film clarity to be maintained at a high level.

Excellent dispersibility
Gasil® anti-blocking silicas provide an optimal balance of particle size, porosity and bulk density characteristics.

Low abrasivity
Gasil® anti-blocking silicas are soft honeycomb structures that are sufficiently strong to resist mechanical attrition during processing but soft enough to minimise wear on processing equipment.

Inert
Gasil® anti-blocking silicas are inorganic and do not affect taint, odour or toxicity. The use of Gasil® anti-blocking silicas in polymer films does not lead to taint and odour problems in packaging applications. Gasil® anti-blocking silicas are amorphous to X-rays and are non-silicotic.

Consistent product quality
The precise control of the physical and chemical characteristics of Gasil® anti-blocking silicas ensures consistent performance.
PRODUCT SELECTION
Finding the optimal Gasil® anti-blocking silica for your application

High clarity polymer films produced from PA, LDPE, LLDPE, mLLDPE, PP, PVC, and PET resins are inherently prone to blocking. Blocking is particularly common in films produced by the following techniques:

- Blown Film Extrusion
- Casting
- Biaxial Orientation
- Tubular Water Quench (Polypropylene)
- Calendering

Selection of the optimal Gasil® anti-blocking silica will depend upon the magnitude of the blocking potential, base resin type, target film thickness and method/process of film manufacture.

Anti-blocking efficiency
Anti-blocking agents work by imparting a micro-roughness to the surfaces of polymer films. This reduces the contact area between the film layers and allows for penetration of air between them, thereby reducing adhesion. Gasil® anti-blocking silica products are ideally suited for use in all high clarity and thin film applications and the technical experts at PQ can assist with the selection of the optimal Gasil® product.
Absorption of additives
Most packaging films require good slip properties. The micro-rough film surface imparted by Gasil® anti-blocking silicas combined with slip additives reduces film friction. Synthetic silicas are manufactured with a wide range of surface area and pore volume characteristics. The technology of the PQ range of Gasil® anti-blocking silicas has been tailored to combine the greatest anti-blocking efficiency with a low absorption of other polymer additives.

Optical properties
Gasil® anti-blocking silicas are particularly suitable for polyolefin and polyester film grades where optical properties are of prime importance.

Ease of dispersion
Incorporation of anti-blocking additives into the polymer resin is a critical operation because poor dispersion will result in poor efficiency and the inclusion of optical defects in the final polymer film.

The degree of dispersion generally depends upon the type of equipment used. High shear mixing normally has to be applied in order to obtain a homogenous distribution of anti-block in the final film.

Gasil® anti-blocking silicas have been specifically tailored to provide optimal dispersion characteristics with batch/internal (Banbury-type) mixers, twin and single screw, low and high shear extrusion systems. Gasil® anti-blocking silicas can be incorporated into film forming resins at the required concentration by direct addition, compacted/non-dusty multi-additive blend, or via masterbatch concentrate.
## PRODUCT APPLICATIONS BY GRADE

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<th>Gasoil® Grade</th>
<th>PE Masterbatch</th>
<th>PE Film General</th>
<th>PE Film High Clarity</th>
<th>PET and PA Masterbatch</th>
<th>PET and PA Film</th>
<th>PP Masterbatch</th>
<th>BOPP Masterbatch</th>
<th>BOPP Film</th>
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## TECHNICAL SUPPORT

PQ prides itself on providing world class technical support to its customers. A well-equipped R&D center provides a wide range of services including formulation optimisation, comparative performance analysis, sample generation and sample testing.

The range of equipment includes:

- Twin screw compounder for standard lab work (25kg/hr output).
- Single layer film unit (chill roll) for film and sheet preparation.
- Multi-layer film unit (chill roll) for film and sheet preparation.
- Blown film extrusion line for film sample preparation.
- Water quenched blown film line for film ample preparation.
- Bench scale injection moulding equipment.
- Fully equipped film sample testing lab.
STORAGE AND HANDLING
Gasil® silicas are hygroscopic in nature and care should be taken to minimise moisture absorbance during storage. It is recommended that pallets of Gasil® silicas are not stored on top of each other. Care should be taken when handling the product to minimise dusting.

HEALTH AND SAFETY
Material Safety Data Sheets providing detailed toxicological and handling information on Gasil® products are available upon request.
Technical Service
PQ Corporation offers a high standard of technical and analytical service to ensure optimum performance of its products.

For assistance, contact us via email: techsupport@pqcorp.com

PQ Corporation
4 Liverpool Road
Warrington
England
WA5 1AB
T: +44 (0)1925 416100
F: +44 (0)1925 416116

PQ Corporation
280 Cedar Grove Road
Conshohocken
PA 19428, USA
T: +1 610 651 4600
F: +1 610 825 1421

PQ Corporation
Jl Rembang Industri Raya No 24
Jawa Timur
Bangil Pasuruan KM50
67152 Indonesia
T: +62 343 740 114
F: +62 343 740 113

PQ Corporation
Av. Marques de São Vicente
121, 6° andar sala 60101139-001
São Paulo, SP Brazil
T: +55 (0)11 3613 9900
F: +55 (0)11 3613 9919

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