

Hydrocerol™ Chemical Foaming Agents

Sustainability Spotlight



Lightweighting



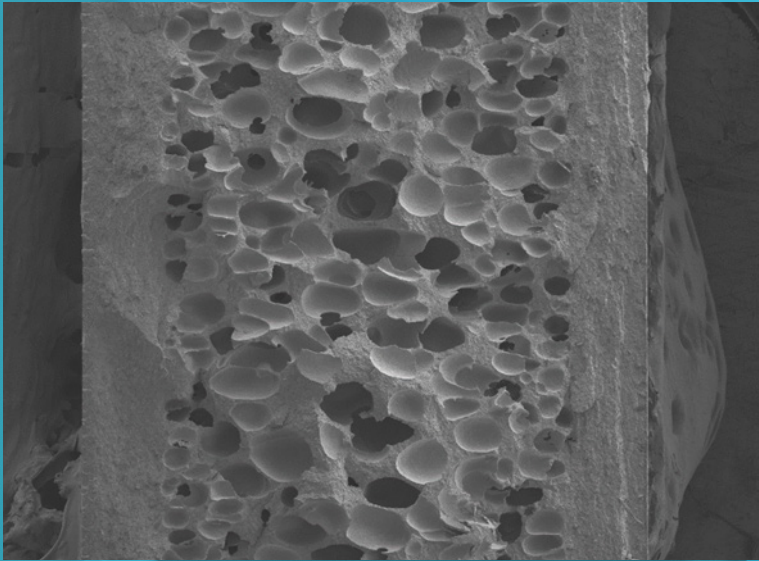
CHEMICAL FOAMING AGENTS (CFAs)

are chemical substances that react under the influence of heat to release gas into the plastic matrix during the manufacturing process of plastic parts. The gases form a cellular foam structure in the plastic that reduces the amount of material needed and hence the part's weight. Therefore, they are typically used for lightweighting projects.

Hydrocerol™ Chemical Foaming Agents are supplied as concentrates and are added to virgin or recycled polymer during the plastic conversion process. They are suitable for injection molding, extrusion, and blow molding. The portfolio includes non-hazardous endothermic substances that require minimum cooling of the plastic parts after manufacturing.

In addition to weight reduction and raw material savings, Hydrocerol CFAs can provide several other benefits that include:

- thermal and acoustic insulation
- increased stiffness-to-weight ratio
- elimination of warpage and sink marks
- more efficient processing



Reflection electron microscopy (REM)
view of foamed plastic



Hydrocerol Chemical Foaming Agents
are supplied as concentrates



APPLICATIONS

Automotive

Hydrocerol Chemical Foaming Agents are particularly recommended for lightweighting projects. By reducing the weight of automotive parts, they support the reduction of CO₂ emissions. Weight reductions of 10 to 20% can be achieved in injection-molded plastic components such as interior trim parts, dashboard carriers, door parts, glove boxes, and blow-molded parts such as air duct systems. Additional advantages include shorter injection molding cycle times and improved part dimensional stability. Grades are available for polyolefins, PP, PC/ABS, ABS, PA6—filled and reinforced polymers included—and others on request.



Packaging

The Hydrocerol CFAs portfolio includes grades specially developed for extruded packaging films and sheets where thermoforming characteristics of the finished article are critical. Typical applications include yogurt pots, cups, trays, and decorative ribbons. The concentrates produce an especially fine-celled foam structure that minimizes the risk of surface defects due to the thermoforming process. Weight reductions between 15 and 30% can be reached in standard monolayer and co-extruded applications. Extrusion-specific concentrates are available for most common packaging resins, including PP, PE, PS, PET, and PLA.



Wire & Cable

Chemical foaming agents can be used in polymers for wire and cable applications as nucleating agents in the physical foaming process, creating regular and small foam cells. They can also be part of the chemical foaming process, achieving a material expansion of up to 50%. They can improve cable insulation and electrical properties and reduce overall material usage and cable weight. Grades are available for various polymer formulations, including polyolefins, PVC, and TPU.





Durable Goods

Injection-molded durable goods can also benefit from the lightweighting effect of chemical foaming agents, especially products used in shipment and freight such as crates, boxes, and pallets, but also products such as brushes and toys. Up to 30% weight reduction can be achieved with Hydrocerol Chemical Foaming Agents in these applications. Additional advantages include shorter injection molding cycle times and improved part dimensional stability. Grades are available for polyolefins, ABS, PS, PA6, and others on request.

Building & Construction

Chemical foaming agents create an especially fine-celled foam structure in extruded goods. This cellular structure results in weight reductions of 15 to 30% in films and sheets and 20 to 40% in pipes, profiles, and boards. Grades are available for polyolefins, styrenics, PVC, PA6, and others on request.

SUPPORT

Our experts can offer product recommendations in the chemical foaming of plastics, taking into consideration:

- Manufacturing process
- Application polymer grades
- Regulatory requirements (e.g., food contact compliance, toy regulations)
- Targeted performance requirement (e.g., lightweighting, polymer use reduction, insulation, improved processing)

They also provide technical assistance and best practices for using Hydrocerol Chemical Foaming Agents in the best conditions for a successful foaming of the plastic parts.

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