



Polymer
Applications with
Lohtragon[®] B42

Lohtragon[®]

Crystallizing Solutions

Enhancing Polymer Applications with Lohtragon® B42

Superior Polymer Performance in Diverse Industries

Plastic materials are omnipresent in our life. Their manufacturing along the polymer value chain is facing steadily increasing technical requirements while fulfilling health, safety & environment (HSE) standards as well as the challenges around the circular plastics economy.

Lohtragon® B42 – based on specialized anhydrous Tricalcium Citrate – is a versatile additive enhancing polymer properties across various applications by acting as blowing agent, nucleating agent, and antioxidant/acid scavenger. Each function contributes unique benefits to the polymer performance.



Revolutionizing Lightweight Polymers: The Lohtragon® B42 Blowing Agent

As a blowing agent, Lohtragon® B42 decomposes under specific conditions, releasing gases that form bubbles within the polymer matrix. This creates a foam structure, resulting in lightweight materials with improved thermal and acoustic insulation. Industries like construction and packaging highly seek these properties in polymers such as polyethylene (PE), polypropylene (PP), and polystyrene (PS).



- Reduced Density:**
Creates lightweight materials, reducing overall weight
- Improved Insulation:**
Enhances thermal and acoustic insulation properties
- Cost Efficiency:**
Lowers material costs by reducing density while maintaining performance
- Enhanced Impact Resistance:**
Provides cushioning and protective qualities in packaging

The implementation of Tricalcium Citrate as a blowing agent involves using concentrations typically ranging from 0.5 % to 2 % by weight, depending on the specific polymer matrix and the desired foam density. The chosen concentration directly influences the amount of gas generated during decomposition, determining the cell size and overall density of the foam. A higher concentration of Lohtragon® B42 leads to more gas production, creating a lower-density foam with larger cells.

Perfect Clarity, Strength, and Processing: The Lohtragon® B42 Nucleating Agent

Lohtragon® B42 is an effective nucleating agent, enhancing the crystallization process in polymers. Its use leads to improved mechanical properties, better clarity, faster processing times, and enhanced dimensional stability. This makes it valuable in the plastics industry for packaging, automotive parts, and household goods. It is typically used in polymer matrixes like polypropylene (PP), polyethylene (PE), including HDPE and LDPE, and polyesters, covering polyethylene terephthalate (PET) and polybutylene terephthalate (PBT).

It also acts as nucleation agent to enhance the even distribution of cells when physical blowing agents are used. The high stability of Lohtragon® B42 offers a wide processing window.



- Enhanced Mechanical Properties:**
Increases tensile strength and stiffness
- Improved Clarity:** Provides better optical properties in transparent polymers
- Reduced Cycle Times:** Accelerates crystallization, shortening processing times
- Dimensional Stability:** Reduces warping and shrinkage, ensuring better product consistency

Enhancing Polymer Applications with Lohtragon® B42

The effective use of Lohtragon® B42 as a nucleating agent involves careful consideration of its concentration and dispersion within the polymer matrix. Typically, Tricalcium Citrate, anhydrous is used in concentrations ranging from 0.1 % to 1 % by weight, depending on the specific requirements of the polymer and the desired level of crystallization enhancement. Proper mixing techniques ensure uniform dispersion and prevent agglomeration. Adjusting processing parameters like temperature and cooling rates maximizes the products nucleating effects, thereby achieving the optimal crystallization and performance characteristics of the polymer.

Improved Durability and Longevity: The Lohtragon® B42 Antioxidant and Acid Scavenging Benefits

As an antioxidant and acid scavenger, Lohtragon® B42 enhances the stability and longevity of polymers by inhibiting oxidative degradation and neutralizing acidic by-products. This dual functionality is crucial for maintaining the mechanical and physical properties of polymer-based products across diverse industries. It is suitable for matrixes like polyoxymethylene (POM), polyethylene (PE), polypropylene (PP), and polyesters such as polyethylene terephthalate (PET) and polybutylene terephthalate (PBT).



Extended Lifespan: Prevents oxidative and acid-induced degradation, prolonging polymer life

Maintained Integrity: Preserves mechanical and physical properties over time

Improved Durability: Enhances overall durability, making polymers more reliable

Cost Efficiency: Reduces the need for multiple stabilizers, lowering formulation costs

Implementing Tricalcium Citrate as an antioxidant and acid scavenger generally involves concentrations ranging from 0.1 % to 1 % by weight, depending on the specific polymer and the degradation challenges it faces. The concentration must be optimized based on the individual matrix and the desired application requirements to effectively neutralize acidic by-products and prevent oxidative degradation. Proper temperature management during processing prevents premature decomposition and maximizes the Lohtragon® B42 stabilizing effects, while ensuring uniform dispersion and compatibility with other additives.

The Special Product Features of Lohtragon® B42



Special Morphology:

Supports a superior dispersion in granules and thus a better polymer quality

Low Water Content:

Leads to homogenous dosing and mixing of polymer matrix

High Purity:

- ◆ Low heavy metal levels, making it suitable for food contact requirements
- ◆ Low iron content, enhancing polymer clarity by preventing discoloration
- ◆ Low halogens, enabling longer machinery lifetimes

Declaration Friendliness and Regulatory Compliance, incl. food contact approval

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At a Glance: Why Choosing Lohtragon® B42 for Polymer Applications

By incorporating Lohtragon® B42 | based on anhydrous Tricalcium Citrate, manufacturers can produce high-performance, durable polymers for various industries. Its multifunctional characteristics – such as its special morphology, its low water content and high purity – make it an essential additive, while adhering to regulatory standards. As a blowing agent, it creates lightweight, insulated materials suitable for packaging, automotive, and construction applications. As a nucleating agent, it improves crystallization, leading to enhanced mechanical properties and reduced processing times. As an antioxidant and acid scavenger, it protects against oxidative and acid-induced degradation, extending the polymers durability and stability.

Our established Lohtragon® B42 portfolio, manufactured at our German production site, includes chemically pure grades and food-contact-safe ones, available in both powder and micronized forms. Furthermore, we provide tailor-made solutions by adjusting chemical and physical properties.

[Connect with us](#) for more information – we look forward to your inquiry!

Do you have further requirements in polymer applications? Access our [Product Selector for Polymer Additives](#).

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Lohtragon® – A Brand of Dr. Paul Lohmann®

For over 135 years, the company Dr. Paul Lohmann has been able to establish and maintain its leading position as an international manufacturer of mineral and metal salts that meet the highest quality standards. The product range includes over 400 different salts, from Aluminum to Zinc, in a total of over 7,000 different specifications. Dr. Paul Lohmann® supplies its specialty salts worldwide to customers in the pharmaceutical industry, food sector, food supplements, cosmetics and – under the Lohtragon® brand – to customers in industrial applications.

Lohtragon® stands for unique competences in manufacturing, optimizing and developing metal salts for a broad variety of industrial market segments. Established in diversity, tailor-made for you, your application and your process - our solution for your challenges!

Established Products

By choosing Lohtragon® products, you benefit from direct manufacturer sourcing and our “Made in Germany” quality and reliability promise.

Joint Developments

From concept phase to tailored product optimization, we are your partner to solve any development challenge.

Expert Services

Rely on services from our application technology, regulatory affairs, logistics, quality departments and more. We fully support you in all areas.