

Stable Aluminium
Salts in Aqueous
Systems



Lohtragon®

Crystallizing Solutions

Lohtragon® Aluminium Salts: Tailored Solutions Optimized for Outstanding Solubility and Stability in Aqueous Systems

Industry Challenge: Stable Aluminium-Phosphate Systems

Many water-based formulations require aluminium and phosphate functionality. However, conventional aluminium phosphate systems suffer from a fundamental limitation:

- ◆ Poor water solubility
- ◆ Rapid precipitation
- ◆ Sedimentation during storage
- ◆ Process instability
- ◆ Inconsistent application performance

These challenges often prevent formulators from fully utilizing the benefits of aluminium-phosphate chemistry in liquid systems.

Lohtragon® Aluminium Salts have been developed to overcome these challenges. Through smart variation of counterions and advanced formulation techniques, Lohtragon® offers aluminium containing solutions with:

The Lohtragon® Approach based on Patented Aluminium Lactate Phosphate Technology

Dr. Paul Lohmann® has developed a patented solution that fundamentally changes the behavior of aluminium-phosphate systems in water.

US Patent 10,899,618

The patented Lohtragon® Aluminium Lactate Phosphate technology¹ uses lactate ions as stabilizing counterions, allowing aluminium and phosphate ions to remain available in stable aqueous formulations while significantly reducing precipitation.

What Makes It Different?

Instead of accepting the natural tendency of aluminium phosphate to precipitate, Lohtragon® applies its metal salt expertise to engineer the ionic environment through targeted counterion design.

Benefits of Lohtragon® Al Aluminium Salts at a Glance



Improved solubility

Stable formulations without the common issues of precipitation or separation



Enhanced stability

Protects your formulation from hydrolysis and side effects, ensuring lasting effectiveness



Processing advantages

Ideal for automated and continuous processes - clean operation with less clogging or wear



Regulatory & safety support

Supports cleaner declarations and safer handling



Flexible application design

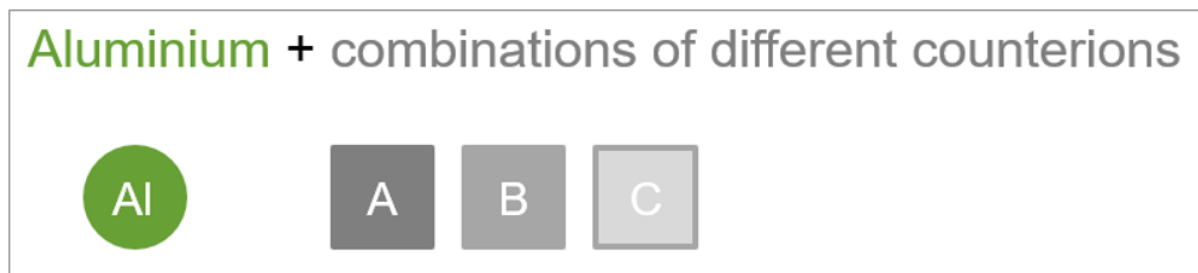
Versatile performance across water-based applications, customizable to your process

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The Lohtragon® Toolbox Approach: One Patent. Multiple Solutions.

The patented Aluminium Lactate Phosphate system demonstrates a broader Lohtragon® capability:

Counterion Engineering



Aluminium can be combined with carefully selected counterions and functionality modifiers such as:



This toolbox approach enables the development of application-specific Aluminium Salt Solutions tailored to customer requirements.

Backed by metal salt expert knowledge and continuous research and development, we are committed to finding the perfect Lohtragon® Al Aluminium Salt for your specific needs – [contact us!](#)

Making the Impact Visible: Product characteristics of Lohtragon® Aluminium Lactate Phosphate

The product data of our patented Lohtragon® Aluminium Phosphate demonstrates the variation of product properties through the additional combination of counterions, leading to a soluble, stable Aluminium Salt with declaration- and process friendly behavior:

Al [%]	Anion	Content Anion [%]			Dry matter [%]	pH
3	Lactate Phosphate	9	6		20	3.2
3	Lactate Phosphate Sulfate	10	2	5	28	2.7
4	Lactate Phosphate Citrate	10	7	1	25	3.5
3	Lactate Phosphate Malate	6	6	8	26	2.9
3	Lactate Phosphate Oxalate	11	7	1	22	3.4
2	Lactate Phosphate Succinate	9	6	1	20	3.1

Further options are possible. With your requirements being specific, partner with us to experience the benefits of Lohtragon® Al Salts and take advantage of tailor-made solutions designed to meet your unique industry needs. Our Lohtragon® toolbox is the basis for a wide range of options, considering your unique system requirements.

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Why It Matters

Aluminium ions are essential in many industrial applications, fulfilling functions like:

- ◆ Anti-corrosion agent (coatings)
- ◆ Setting modifier (construction industry)
- ◆ Fluxing agent (ceramics & glass)
- ◆ Flocculation (water treatment, ceramics)
- ◆ Superabsorbent (polymers)
- ◆ Micronutrient sources (crop care)
- ◆ Cross-linkers (hydrogels)

Performance you can Trust: Lohtragon® Soluble and Stable Al Salts for Liquids

Lohtragon® Al offers innovative Aluminium Salts specifically designed for aqueous systems where conventional salts often fall short due to poor solubility, hydrolysis, or handling challenges. By strategically varying counterions and applying advanced formulation techniques, Lohtragon® Aluminium Salts provide enhanced solubility, stability, and functional flexibility across a wide range of applications – from coatings and ceramics to hydrogels and agrochemicals. Our toolbox-based approach allows for tailored combinations to meet individual system and regulatory requirements.

[Get in touch](#) and partner with the Lohtragon® experts for soluble and stable Aluminium Salts, tailored to your needs, ensuring your product's success.

References

¹ <https://worldwide.espacenet.com/patent/search/family/064453276/publication/EP3483118A1?q=pn%3DEP3483118A1>

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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.