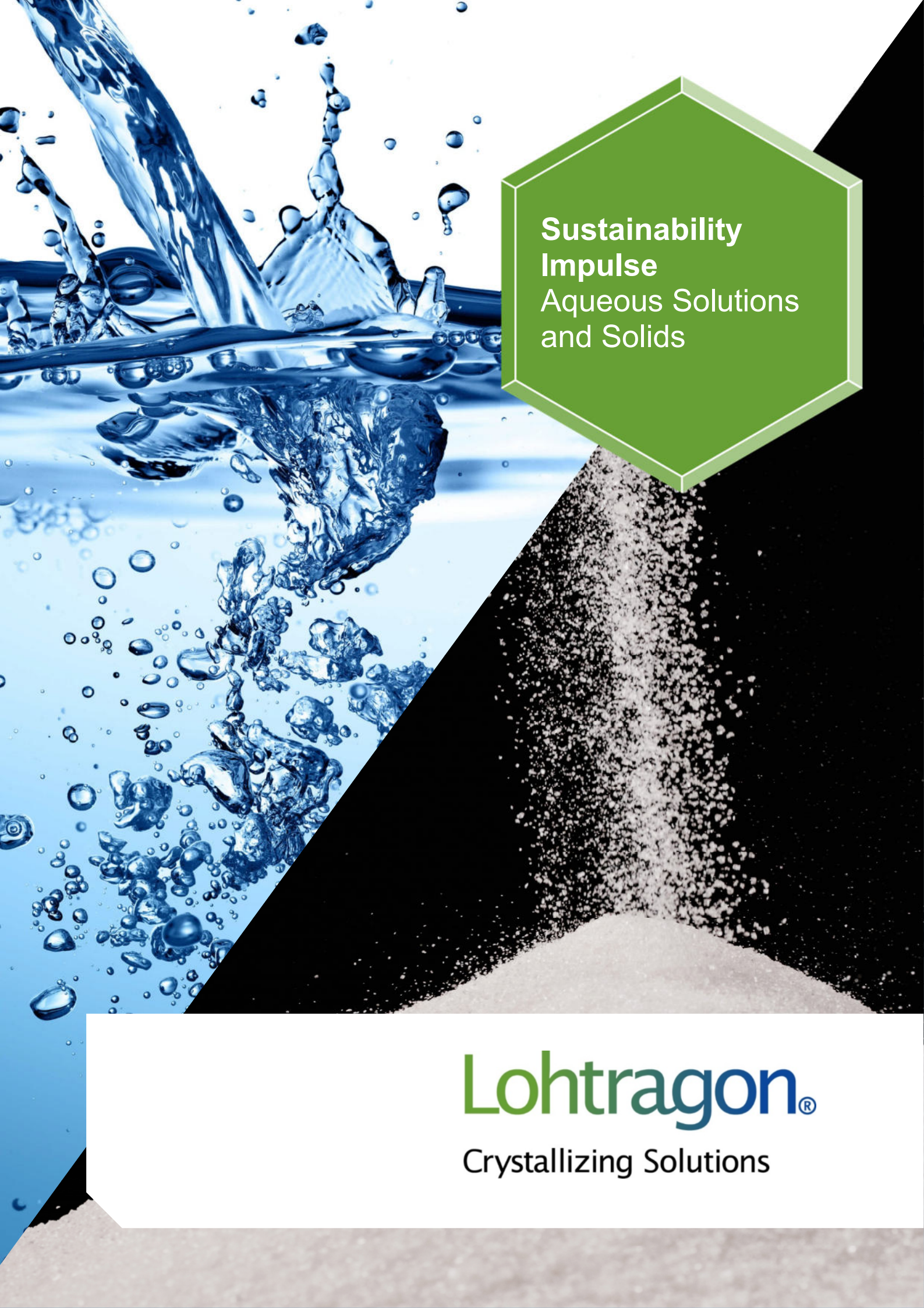

Sustainability Impulse
Aqueous Solutions and Solids

Lohtragon®

Crystallizing Solutions

Lohtragon®

Info Sheet Lohtragon®

Sustainability Impulse: Aqueous Solutions and Solids

As part of the Dr. Paul Lohmann® company approach, the Lohtragon® mindset around sustainability in metal salt production includes manifold principles to enable a responsible way of handling resources and to protect the environment. We are committed to this approach and apply it along the entire value chain – including all departments from administration to warehousing. Here is an extract of selected, corporate key aspects:

Sustainable Sourcing		♦ Responsible raw material selection ♦ Local supplier strategy based on long-term partnerships ♦ Landscape restoration
Sustainable Production		♦ Implementation of PIUS (production-integrated environmental protection) ♦ Resource efficiency and responsible resource management ♦ Thinking in circles: Recycling wherever possible
Sustainable Logistics		♦ Strive for environmentally friendly solutions: full container deliveries, combined shipments, optimized transport routes, participation in pallet recycling systems, etc. ♦ Usage of physiologically harmless primary packaging materials ♦ Focus on geographical proximity for packaging sourcing

Carbon Footprint Considerations of Aqueous Solutions Compared to Solids

We constantly strive to understand the usage of our metal salts in their final applications. Thus, we – together – can avoid unnecessary, but energy intensive production steps, leading to **advantages in terms of CO_2 balance**, and contributing to an improved carbon footprint of the specific supply chain. Wherever processes allow the usage of the aqueous form of metal salts, these have advantages compared to its related solids. This approach bases on two main elements, which highly influence the carbon footprint:

- **Production**, as the energy needed during the production processes:
  - During the production of the aqueous solutions, the energy consuming evaporation and drying steps can be omitted on our site.
  - If the customer process starts with the dissolution of our metal salt solid, this manufacturing step can be avoided on customer site too by directly purchasing the Lohtragon® aqueous solution.

- **Transportation**, as a combination of the mode of transport and the transportation distance:
  - The transported amount of a solution is basically higher than that of the solid equivalent. Nevertheless, due to the significant energy savings in production, the transport of an aqueous solution contributes to a remarkable reduction of CO_2 emissions.

The following carbon footprint calculation gives an example about the described carbon footprint effect during production and transportation, and shall let us think about possible sustainability advantages in supply chains.

Our goal is to certify this calculation approach using a suitable method and thus guarantee our customers a valid data and decision-making basis. We aim to established custom-fit calculations taking into account individual product quantities, transport modes and distances in order to make the carbon footprint visible.

Sustainability Impulse: Aqueous Solutions and Solids

Case Study: Potassium Acetate Solid vs. 50 % Potassium Acetate Solution

	Potassium Acetate Solid	Potassium Acetate 50 % Solution
Product quantity	15,000 kg	30,000 kg
Transport requirement	1 full truck	2 full trucks
CO_2 emission during transport for 500 km	700 kg/CO_2	1,400 kg/CO_2
Total CO_2 emission: production and transport	8,700 kg/CO_2	1,400 kg/CO_2
CO_2 saving	**-7,300 kg/CO_2**	

> 39,000 km (with a consumption of 7 l/100km) > 575 trees (12.5 kg CO_2/a)

Please note that the given data are exemplarily and subject to rounding.

The above case study refers to a product quantity of 15 tons of our Potassium Acetate Solid, our Lohtragon® O02, compared to the equivalent of 30 tons of its 50 % Potassium Acetate Solution, our Lohtragon® O52.

Considering the energy consumption for the product manufacturing and a transport distance of 500 km delivered by truck – corresponding e.g. to a distance from Emmerthal to Munich –, the usage of the 50 % aqueous solution results in a **saving of approx. 7,300 kg/CO_2**. The CO_2 saving corresponds to the photosynthesis of over 575 trees, assuming that a tree absorbs 12.5 kg CO_2 per year. (source: https://treedd.de/baeume-und-klima).

Overall, the case study shows that aqueous solutions can bring advantages over solids in terms of carbon footprint calculations. Therefore, **let us think about the usage of aqueous solutions, wherever processes allow this**.

Reach out to us for questions, and your individual carbon footprint calculation for your specific product need and transportation mode up to your production site or warehouse.

Are you interested in the Lohtragon® aqueous solution range? Have a look into our Info Sheet Aqueous Solutions. Your solution is not listed yet? Contact us!

Do you would like to know more about our corporate sustainability approach? Access the Dr. Paul Lohmann® Sustainability Report.

Contact

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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!