

A close-up photograph of a hand turning a chrome faucet handle. The hand is positioned on the right side of the frame, with fingers gripping the handle. The faucet is made of polished chrome and is set against a white background. The lighting is bright, highlighting the metallic sheen of the faucet and the texture of the skin.

Surface  
Treatment

**Lohtragon**®

Crystallizing Solutions

## Info Sheet Lohtragon®

### Surface Treatment

Lohtragon® metal salts are widely used in chemical surface treatment applications. Carefully conducted chemical reactions modify the surface of various substrates in preparation for downstream process operations, final functional surfaces or decorative aspects. Lohtragon® products support to establish safe and reliable formulations for such processes.

#### Metal Pickling

Every metal treatment process starts with an initial degreasing step. Degreasing with alkaline agents has widely replaced solvent based systems. The pre-treatment process prior to bonding or coating is crucial to prevent adhesion problems and surface defects in subsequent treatment steps.

#### Metal pickling – replacement of nitric and chromic ions

Strong mineral acids with nitrate and dichromate ions were widely used to treat Zinc, Chrome, Iron, Nickel, Aluminium and Copper. However, to health and safety regulations as well as other restrictions there is a trend to substitute these compounds wherever possible. Our Lohtragon® V04 and Lohtragon® V28, for instance have the ability to replace nitric and dichromic acid in certain pickling baths. Lohtragon® provides such products also as aqueous solution.



#### Aluminium

The alkaline degreasing step often leaves surface deposits which need to be removed because these will negatively affect the uniform bonding or coating, especially when thin coatings of less than 100 - 140 µm are applied to car bodies or planes. Our Lohtragon® V04 and Lohtragon® V28 are used in acid etching formulations.

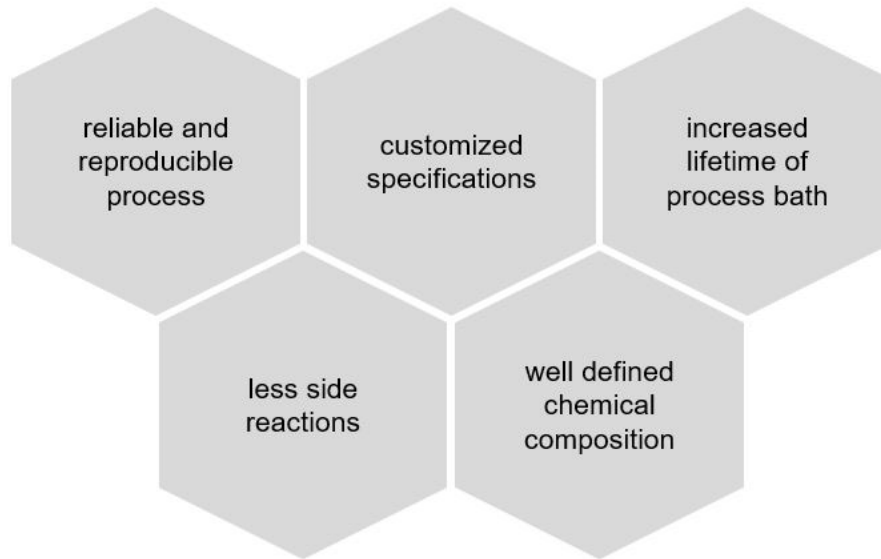
#### Workflow – Metal treatment process



## Surface Treatment

### High Purity Chemicals – Safer Processes

High purity Lohtragon® chemicals help to establish safe and reliable formulations, especially when precious metals are used as catalysts or coatings: All our salts are available in very high purity grades for safe, consistent and reliable surface treatment processes.



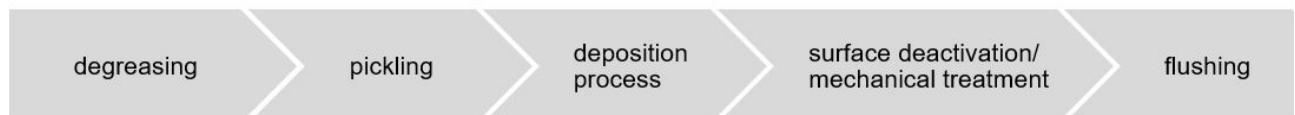
### Electroplating of Surfaces

Electroplating methods are used to functionalize metal and non-metal surfaces for enhanced corrosion protection, decorative appeal, wear resistance, hardness, solderability, electrical or thermal conductivity, oil retention and ease of cleaning.

The multistep electroplating process usually involves sophisticated production equipment, several process steps and different chemicals. There is some variation but most electrochemical deposition processes follow a standard workflow. The deposition process can be electrolytic or electroless.



### Workflow – Electroplating process



## Surface Treatment

### Product Portfolio

Product	Type	Used substance	Product description	CAS no.	Function	Electroplating	Metal Pickling	Tribology
<b>Ammonium Salts</b>								
Lohtragon® O05	20	Ammonium Acetate	crystals   chem. pure	631-61-8	◆ pH-control ◆ buffer	✓		
Lohtragon® O55	10	Ammonium Acetate 50 % Solution	aqueous solution	631-61-8	◆ pH-control ◆ buffer	✓		
<b>Iron Salts</b>								
Lohtragon® C73	171	Ferrous Gluconate 2-hydrate	granules   chem. pure	22830-45-1   299-29-6		✓		
Lohtragon® E36	16	Ferric Nitrate 9-hydrate	crystals   chem. pure	7782-61-8		✓	✓	
Lohtragon® V28	23	Ferric Sulfate	powder   chem. pure	10028-22-5   15244-10-7	◆ etching agent	✓	✓	
		Ferric Sulfate 55 % Solution	aqueous solution	10028-22-5	◆ etching agent	✓	✓	
Lohtragon® V05	273	Ferrous Sulfate, dried	powder   chem. pure	7720-78-7   13463-43-9		✓		
Lohtragon® V04	131	Ferrous Sulfate 7-hydrate	crystals   chem. pure	7782-63-0	◆ Iron source	✓		
		Ferrous Sulfate 40 % Solution	stabilized solution	7782-63-0	◆ Iron source	✓		
<b>Potassium Salts</b>								
		Potassium Citrate, anhydrous	powder   chem. pure	866-84-2	◆ complexing agent	✓	✓	
Lohtragon® B40	105	Tripotassium Citrate 1-hydrate	crystals   chem. pure	6100-05-6	◆ complexing agent	✓	✓	
Lohtragon® B71		Potassium Formate	crystals   chem. pure	590-29-4	◆ complexing agent	✓	✓	
		Potassium Formate 70 % Solution	aqueous solution	590-29-4	◆ complexing agent	✓	✓	
Lohtragon® O16	19	Dipotassium Oxalate 1-hydrate	crystals   chem. pure	6487-48-5		✓		
		Potassium Aluminium Sulfate	crystalline powder	7784-24-9		✓		
Lohtragon® B61	28	Potassium Sodium Tartrate 4-hydrate	crystals   chem. pure	6381-59-5	◆ complexing agent	✓		
Lohtragon® B60	11	Dipotassium Tartrate 0.5-hydrate	crystals   chem. pure	6100-19-2	◆ complexing agent	✓	✓	
		Potassium Tartrate 50 % Solution	aqueous solution	6100-19-2	◆ complexing agent	✓	✓	

## Surface Treatment

### Product Portfolio

Product	Type	Used substance	Product description	CAS no.	Function	Electroplating	Metal Pickling	Tribology
<b>Sodium Salts</b>								
Lohtragon® K18	83	Sodium Acetate, anhydrous	powder   chem. pure	127-09-3	◆ pH-control ◆ buffer	✓		
Lohtragon® K16	53	Sodium Acetate 3-hydrate	crystals   chem. pure	6131-90-4	◆ pH-control ◆ buffer	✓		
Lohtragon® B09	140	Trisodium Citrate 2-hydrate	fine powder   chem. pure   optimized flowability	6132-04-3	◆ complexing agent	✓		
		Sodium Citrate 5.5-hydrate	crystals   purity acc. to E331(iii)	6858-44-2	◆ complexing agent	✓		
Lohtragon® B67	29	Sodium Formate	crystalline powder   chem. pure	141-53-7	◆ complexing agent	✓		
Lohtragon® B45	23	Sodium Succinate 6-hydrate	crystals   chem. pure	6106-21-4	◆ complexing agent ◆ buffer	✓	✓	
		Sodium Succinate 40 % Solution	aqueous solution	6106-21-4	◆ complexing agent ◆ buffer	✓	✓	
<b>Zinc Salts</b>								
Lohtragon® O08	18	Zinc Hydroxide Carbonate	powder   chem. pure	51839-25-9	◆ Zinc source	✓		
Lohtragon® O79	8	Zinc Pyrophosphate	powder   chem. pure	7446-26-6	◆ Zinc source			✓

### Contact

Connect directly with our Lohtragon® experts in our German headquarter.



 +49 5155 63-5888  
 [contact@lohtragon.com](mailto:contact@lohtragon.com)  
 [www.lohtragon.com](http://www.lohtragon.com)

### 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!