



Highly Purified Salts for Health and Wellbeing



The Authority in Potassium and Magnesium

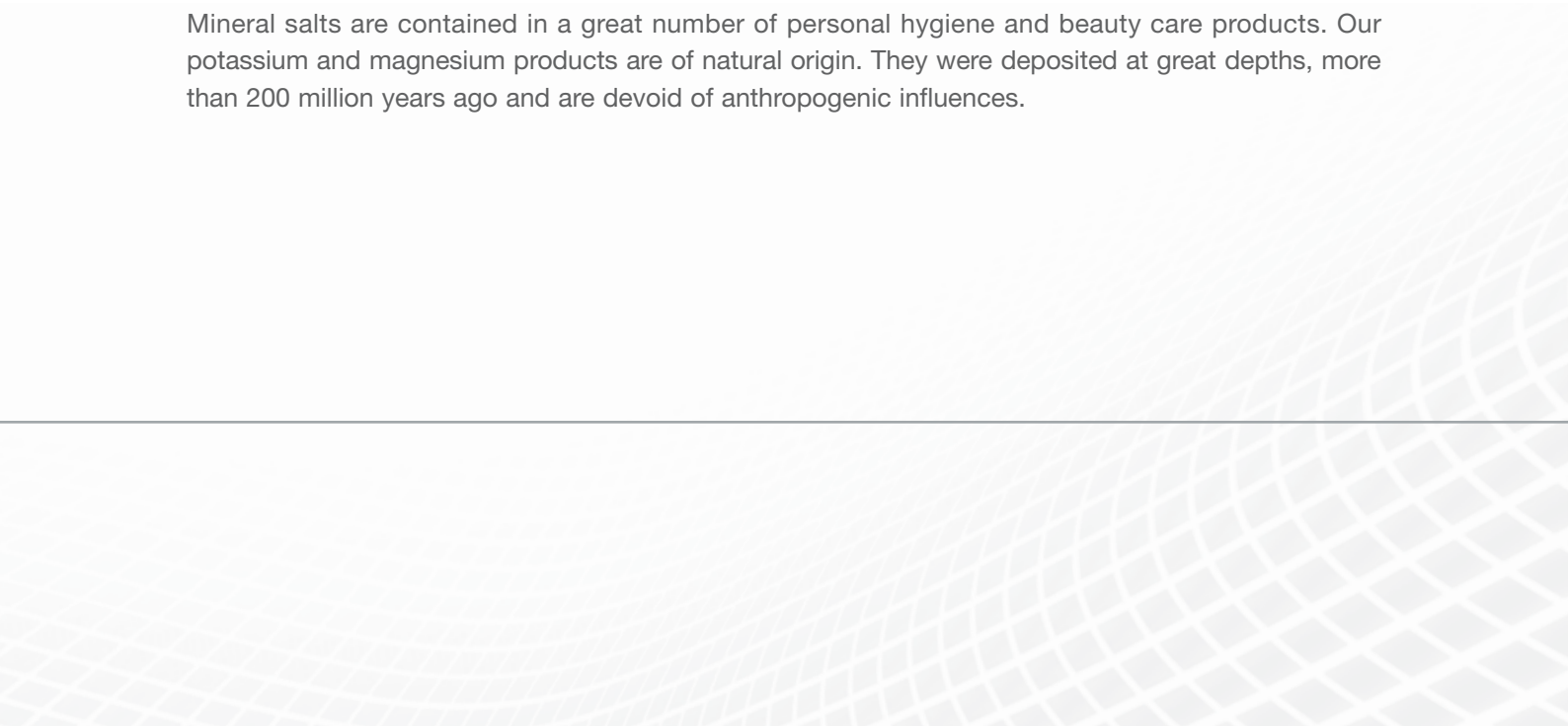
**K+S KALI GmbH – The Authority
in Potassium and Magnesium**





K+S KALI GmbH is an international company and a global partner in potassium and magnesium products. Our products are used in many technical, industrial, pharmaceutical and cosmetic applications.

Mineral salts are contained in a great number of personal hygiene and beauty care products. Our potassium and magnesium products are of natural origin. They were deposited at great depths, more than 200 million years ago and are devoid of anthropogenic influences.





Health Care & Food – Highly Purified Salts for Health and Wellbeing

Highly Purified Salts for Sensitive Products

With its high-purity potassium and magnesium salts K+S KALI GmbH provide a product portfolio specifically for the high expectations of the pharmaceutical, cosmetic and food industry sectors. Certification with internationally recognised standards and governing bodies prove that our products meet all the necessary criteria for applications within these highly sensitive sectors.

Quality Management throughout the Process Chain

State of the art processes and a fully encompassing quality management system throughout the entire process chain ensures the compliance required to satisfy pharmacopoeia and industrial standards. Due to our in-house department for research and development, as well as our technical advisory service, we are always moving with the latest developments – or even a step ahead!

K+S KALI GmbH – A Guarantor for Product Safety

The many years of experience with the production and supply of high-purity substances allows K+S KALI GmbH to guarantee product safety combined with a high level of consulting expertise for our customers. For more information on the products and their areas of application, please contact our technical department.

Application Areas

Potassium and magnesium salts are used in a variety of applications throughout the pharmaceutical, cosmetic and food industries.

This brochure provides an overview of the most important fields of application for high-purity potassium and magnesium products in the “Health Care & Food” sector.

For more information on the high-purity products and their areas of application from K+S KALI, please contact our sales department.







Application Pharmaceuticals

Pharmaceutical Production

K+S KALI GmbH is one of the world's largest producers of natural salts. Within their dedicated facilities, potassium chloride, potassium sulphate and epsom salt are produced to the highest grades of purity. State-of-the-art processes and quality controls guarantee compliance with the strict regulations of the most important international pharmacopoeias and Good Manufacturing Practice (GMP).

Our pharmaceutical grade salts (Ph. Eur., USP) are used for infusion and dialysis solutions, including flush solutions, as well as in potassium preparations for a variety of applications.

The products manufactured by K+S KALI GmbH are also used for the biotechnological production of enzymes, antibiotics and insulin.

Biotechnology

Our potassium and magnesium products are used in a variety of biotechnological processes. They serve as important nutrient sources of potassium, magnesium and sulphur for micro-organisms.

Some of the products created in these fermentation processes are tea, citric acid, alcohol, yeasts and fungi, lactic acids and tobacco.

Application Food





Foodstuff Production

Our potassium and magnesium products are used both as processing aids and as additives for the production of a great variety of foods. They are required in order to guarantee an optimal supply of both minerals to the human body or to conduct the appropriate food-technological processes.

Within the human cell, potassium is the predominant mineral. Throughout the whole body, potassium ranks third after calcium and phosphorus.

The most important functions of potassium are the maintenance of the membrane potential and the generation of tension-dependent action potentials. These are decisive factors for the stability of human cells, the excitability of muscles and nerves, the transport of glucose, the generation of proteins, and the regulation of the acid-base and water balance.

Magnesium plays an important role in many metabolic processes, such as the metabolism of carbohydrates, proteins, fats and nucleic acids. It is indispensable for the energy supply to the body's cells.

Carrageenan Production

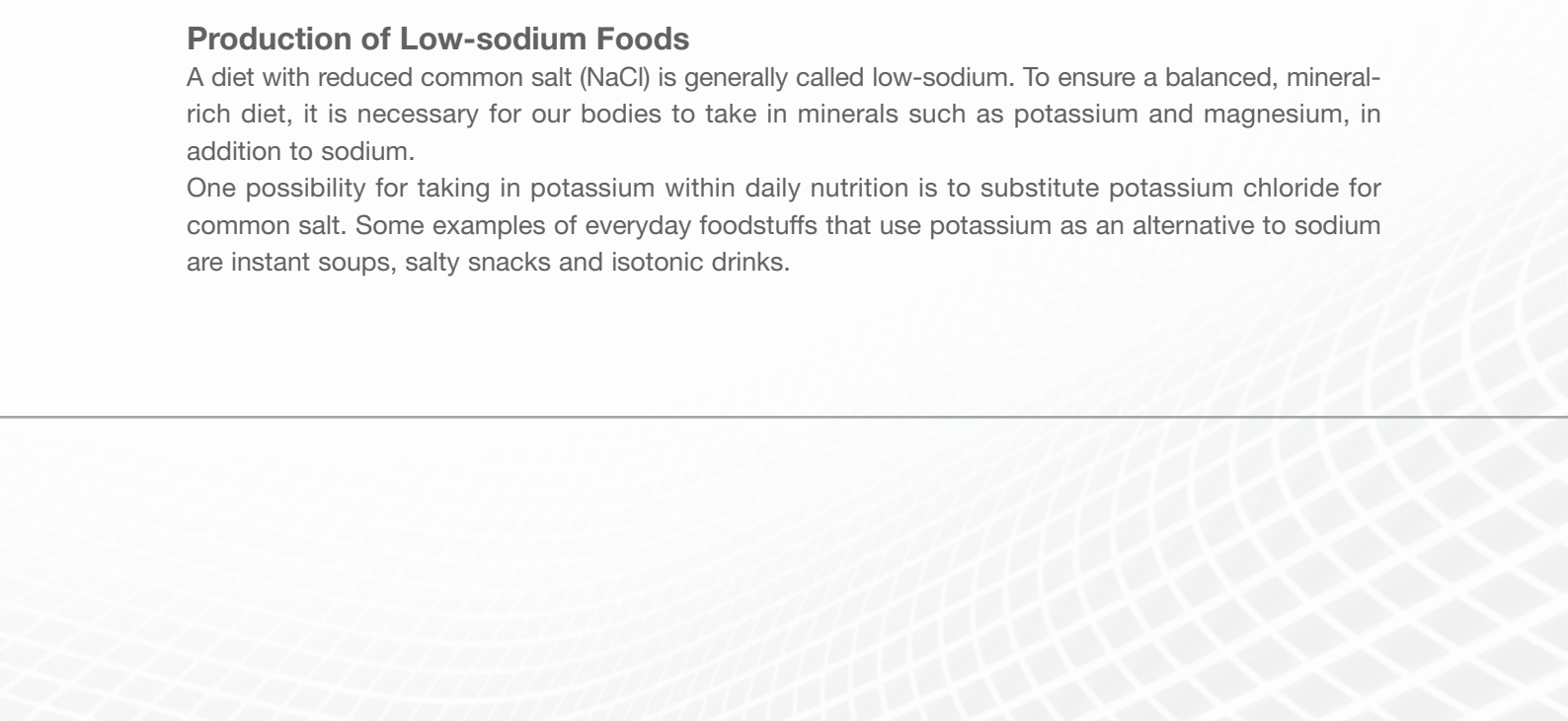
Carrageenan is a collective term for long-chain carbohydrates which are found in the cells of certain red algae. In carrageenan production, potassium chloride is used for precipitating kappa and iota carrageenan after extraction. Additionally, potassium chloride is intermixed with the finished carrageenan in order to fortify its effect.

Carrageenan is used as a gelling and thickening agent in a multitude of foods. It is also used by the cosmetics industry, for products such as toothpaste.

Production of Low-sodium Foods

A diet with reduced common salt (NaCl) is generally called low-sodium. To ensure a balanced, mineral-rich diet, it is necessary for our bodies to take in minerals such as potassium and magnesium, in addition to sodium.

One possibility for taking in potassium within daily nutrition is to substitute potassium chloride for common salt. Some examples of everyday foodstuffs that use potassium as an alternative to sodium are instant soups, salty snacks and isotonic drinks.



Application Wellbeing

Floatation Equipment

The term “Floatation” describes a relaxation technique, in which concentrated epsom salt solutions are used to weightlessly float a person in a special floating tank or a water basin. This is normally done in a protected environment, ensuring it is isolated from external stimuli. Some providers also use soothing light and sound effects.

The intended result of such a treatment is deep relaxation. Floatation is a direct, simple and safe way of reducing stress thereby contributing significantly to improving the everyday quality of life.

Bath Salt from Natural Origin

Our epsom salt is derived from natural salt deposits deep underground. These deposits were formed over 200 million years ago as ancient seawater evaporated.

Natural epsom salt from K+S KALI GmbH consists of a unique combination of magnesium and sulphate which help the body relax, increasing your wellbeing and maintains healthy skin in a natural way.



Product Overview



K+S KALI GmbH provides high purity epsom salts, potassium sulphates and potassium chlorides, certified in accordance with internationally accepted standards, for applications within the health care & food sectors.

The product pages contain more information about the various qualities and applications. Existing certificates and technical bulletins are available for download on our website www.kali-gmbh.com.

Our product range in the area of Health Care & Food comprises Potassium Chloride 99.3% FCC, WHO, E 508; Potassium Chloride 99.9% Ph. Eur., USP; Potassium Sulphate 99.9% Ph. Eur., DAC, E 515; Epsom Salt chemically pure, FCC; Epsom Salt Ph. Eur., USP; REV. Spa Bath and FloatMaXX.

Potassium Chloride 99.9 % KCl

Ph. Eur., USP

KCl – A Pure Ingredient for Insulin Production

Product Features

- natural origin
- high purity
- particularly low content of secondary salts
- complies with European and US-American pharmacopoeias (Ph. Eur. and USP)

Product Composition

99.9 % KCl

Relevant Application Areas

- pharmaceuticals
- biotechnology
- cosmetics

Certification

certified according DIN EN ISO 9001:2000, Kosher, Halal and GMP

Recommendations for Use

KCl 99.9 % Ph. Eur., USP is used for the production of infusion and haemodialysis solutions, as well as standard injections, for enteral and parenteral nutrition, for potassium tablets, dietary salts, athletes' nutrition and mineral drinks. Our pharmaceutical grade is also used for purifying insulin. In biotechnology it is used as a source of the macronutrient potassium for micro-organisms. Beyond that, it is also used as a raw material in the production of cosmetic substances.



Potassium Chloride 99.3 % KCl

FCC, FAO, WHO, E 508

KCl – For Use throughout the Food Industry

Product Features

- natural origin
- high purity
- particularly low content of secondary salts
- complies with international food regulations

Product Composition

99.3 % KCl

Relevant Application Areas

- manufacture of food
- pharmaceuticals
- biotechnology
- cosmetics

Certification

certified according DIN EN ISO 9001:2000,
Kosher, Halal and GMP

Recommendations for Use

In the production of carrageenan KCl 99.3 % is used as an additive to improve the final product's gel stability. Furthermore it is used as an additive for the production of a great variety of foods. Within biotechnology, KCl 99.3 % is used as a source of the macronutrient potassium for micro-organisms. It is a raw material in the production of cosmetic preparations, KCl 99.3 % is used as an ingredient by the food industry.



Potassium Sulphate 99.9 % K_2SO_4

Ph. Eur., DAC, FCC, E 515

K_2SO_4 – For Use throughout the Pharmaceutical Industry

Product Features

- high purity
- low content of secondary salts

Product Composition

99.9 % K_2SO_4

Relevant Application Areas

- pharmaceuticals
- cosmetics
- manufacture of food
- biotechnology

Certification

certified according DIN EN ISO 9001:2000,
Kosher, Halal and GMP

Recommendations for Use

The pharmaceutical industry requires K_2SO_4 99.9 % as a raw material for the production of drugs and cosmetic products. In the food industry and in biotechnology K_2SO_4 99.9 % is used as a source of the macronutrients potassium and sulphur for micro-organisms.



Epsom Salt Chemically Pure, FCC – Epsom Salt as a Food Additive

Product Features

- high purity
- low content of secondary salts

Relevant Application Areas

- manufacture of food
- biotechnology
- cosmetics

Product Composition

49 % MgSO_4

Certification

certified according DIN EN ISO 9001:2000

Recommendations for Use

Our epsom salt is produced and packaged under conditions that correspond to U.S. demands in accordance with the Food Chemicals Codex (FCC). The Mg-component in epsom salt is used in nutrition physiology. Within biotechnology, epsom salt is used for fermentation. Beyond these applications, this salt is also used in enzymatic processes, such as in isomerisation of glucose to fructose; in this case magnesium acts as a co-enzyme. Epsom salt is also used for concentrating and purifying enzymes by precipitation and for the production of cosmetics.



Epsom Salt Ph. Eur., USP – Epsom Salt for Pharmaceutical Purposes

Product Features

- high purity
- low content of secondary salts

Product Composition

49 % MgSO_4

Relevant Application Areas

- pharmaceuticals
- biotechnology
- cosmetics
- manufacture of food

Certification

certified according DIN EN ISO 9001:2000,
Kosher, Halal and GMP

Recommendations for Use

Our epsom salt is produced and packaged under conditions that correspond to European and U.S. demands in accordance with the local pharmacopoeias. In pharmaceuticals epsom salt is used as a laxative. Within biotechnology, epsom salt is used for fermentation.

Beyond these applications, this salt is also used in enzymatic processes, such as in isomerisation of glucose to fructose; in this case magnesium acts as a co-enzyme. Epsom salt is also used for concentrating and purifying enzymes by precipitation. The product is also used for the production of cosmetics. Furthermore the Mg-component in epsom salt is used in nutrition physiology.



REV. – The Spa Bath

Product Features

- natural product
- without allergenic fragrances
- coping with stress/raising stress tolerance
- physical and mental revitalisation

Product Composition

49 % MgSO₄ and aroma

Relevant Application Areas

- bath tubs

Certification

certified according DIN EN ISO 9001:2000



Recommendations for Use

Pour at least half the pack contents into the bath while the hot water is running. Then add cold water until the desired temperature is reached. The best results are achieved if bathing is for 30 minute periods. Repeat bathing as desired (normally 2-3 times per week). Our natural epsom salts have been dermatologically tested by SGS INSTITUT FRESENIUS.

Additional Information

The product is available as...

- REV. Nature
- REV. Fresh breeze
- REV. Green apple
- REV. Nectarine
- REV. Pina Colada

in 500 g cans.

FloatMaXX – The Premier Salt for Floatation Tanks

Product Features

- natural product
- coping with stress/raising stress tolerance
- pain reduction
- physical and mental revitalisation

Product Composition

49 % MgSO₄

Relevant Application Areas

- floatation tanks
- hot tubs

Certification

certified according DIN EN ISO 9001:2000



Recommendations for Use

Floatation tanks are also called Samadhi tanks or meditation tanks. For these applications, extremely pure epsom salt is required, exhibiting neither discolorations nor precipitation in the brine. Due to its exceptional purity and natural origin, FloatMaXX specifically meets these requirements. The magnesium and sulphate ions contained in FloatMaXX may be absorbed by the skin. One in two Europeans show deficiencies of these two substances.

After a demanding day, floating in FloatMaXX helps to restore a healthy energy level, to relax naturally or to simply enjoy blissful peace and quiet. Our epsom salts are dermatologically tested by SGS INSTITUT FRESENIUS.

Product Package Size

	Bag (25 kg)	Big Bag	Can (500 g)
Potassium Chloride 99.9 % KCl Ph.Eur., USP	■	■	
Potassium Chloride 99.3 % KCl FCC, FAO, WHO, E 508	■	■	
Potassium Sulphate 99.9 % K₂SO₄ Ph. Eur., DAC, FCC, E 515, E 515	■	■	
Epsom Salt Chemically Pure, FCC	■		
Epsom Salt Ph. Eur., USP		■	
REV. The Spa Bath			■
FloatMaXX	■	■	

Our Qualified Contact Persons

Sales Europe

CZECH REPUBLIC/SLOVAKIA	K+S CZ a.s.	Tel. +420 2 61342-475/-479 gerhard.braunstein@kali-gmbh.com
FRANCE	K+S KALI France	Tel. +33 326 84 68 77 hermann.weinbuch@kalifrance.com www.kalifrance.com
GERMANY	K+S KALI GmbH	Tel. +49 561 9301-2312 franz.loth@kali-gmbh.com www.kali-gmbh.com
GREAT BRITAIN/IRELAND	POTASH LIMITED	Tel. +44 1992 517 400 info@potash-ltd.co.uk www.potash-ltd.co.uk
GREECE	Potash & Magnesium	Tel. +30 2 10 6 72 46 96 iveve@vodafone.net.gr
HUNGARY	SZÍRIUSZ TRADE BT.	Tel. +36 1 225 8641 zsom.eszter@t-online.hu
ITALY	K+S Italia S.r.l.	Tel. +39 045 59 79 77 info@k-s-italia.it
POLAND	K+S Polska sp. z o.o.	Tel. +48 61850 9365 nawozy@ks-polska.pl
SPAIN/PORTUGAL	COMPO Agricultura S.L. Division K+S KALI GmbH	Tel. +34 93 224-7334 enrique.tonagel@kali-gmbh.com
SWEDEN/DENMARK	esco Nordic AB Division K+S KALI GmbH	Tel. +46 31 773-7007 christine.malander@kali-gmbh.com



SWITZERLAND

Kali AG

Tel. +41 31 926 60 00

info@kali.ch

**THE NETHERLANDS/
BELGIUM/LUXEMBOURG**

K+S Benelux bv

Tel. +31 76 56450-41

achim.schnitzler@kali-gmbh.com

Sales Overseas

ARGENTINA

K+S Argentina SRL

Tel. +54 11 4342-2220

johann-peter.bauza@ks-argentina.com

BRAZIL

K+S Brasileira Fertilizantes
e Produtos Industriais Ltda.

Tel. +55 11 3443-1777

ksbrasileira@ksbrasileira.com.br

CHINA

Shenzhen
K+S Trading Co., Ltd.

Tel. +86 755 8282-5909

china@k-plus-s.com.cn

INDIA

Potash Fertilizers
(India) Pvt. Ltd.

Tel. +91 22 2282-0794/-0671

pflbom@vsnl.com

SOUTH AFRICA

Industrial Commodities
Holdings (PTY) Ltd.

Tel. +27 11 880-5200

ich@ich.co.za · www.ich.co.za

SOUTH-EAST-ASIA/PACIFIC

K+S Asia Pacific Pte. Ltd.

Tel. +65 6274-0100

josef.wiebel@kali-gmbh.com.sg

USA

K+S North America Corp.

Tel. +1 212 697 4994

sales@ks-northamerica.com

www.ks-northamerica.com



K+S KALI GmbH

Bertha-von-Suttner-Straße 7 · 34131 Kassel · Germany
Phone +49 (0)561 9301 1485 · Fax +49 (0)561 9301 1186
industrial.sales@kali-gmbh.com · www.kali-gmbh.com

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