

# Product Fact Sheet

## LOCRON<sup>®</sup>



Antiperspirant agent for the cosmetic industry

<b>Composition</b>	Aluminum hydroxychloride	
<b>INCI Name:</b>	Aluminum Chlorohydrate	
<b>Product properties<sup>1</sup></b>		
<b>Appearance (20 °C)</b>	Locron <sup>®</sup> S	fine flakes
	Locron <sup>®</sup> P	powder (mind. 99.5 %: max. 40 µm)
	Locron <sup>®</sup> L/ Locron <sup>®</sup> L.ZA	liquid (approx. 50 % aqueous solution)
	Locron <sup>®</sup> LIC	liquid (approx. 50 % aqueous solution)
	<b>Aluminium (% m/m)</b>	Locron <sup>®</sup> S
	Locron <sup>®</sup> P	24.6 – 25.6
	Locron <sup>®</sup> L	12.2 – 12.7
	Locron <sup>®</sup> LIC	12.2 – 12.7
<b>Chloride (% m/m)</b>	Locron <sup>®</sup> S	15.8 – 16.8
	Locron <sup>®</sup> P	16.3 – 17.3
	Locron <sup>®</sup> L/ Locron <sup>®</sup> L.ZA	7.9 – 8.4
	Locron <sup>®</sup> LIC	7.9 – 8.4
<b>pH (15 % aqueous solution)</b>		approx. 4.2
<b>Iron (mg/kg)</b>	Locron <sup>®</sup> S	max. 100
	Locron <sup>®</sup> P	max. 100
	Locron <sup>®</sup> L/ Locron <sup>®</sup> L.ZA	max. 50
	Locron <sup>®</sup> LIC	max. 35

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### Manufacture

Reaction of aluminum or compounds containing aluminum with hydrochloric acid.

### Profile

The Locron<sup>®</sup> grades are aluminum hydroxychlorides in solid form (Locron<sup>®</sup> S,

<sup>1</sup> These characteristics are for guidance only and not to be taken as product specifications. The tolerances are given in the product specification sheet. For further product properties, specifications, safety and ecological data, please refer to the MSDS.

Locron® P) or as 50% aqueous solutions (Locron® L, L.ZA, LIC).

Locron® is a mild astringent that reduces perspiration and has a slight deodorising effect. It is therefore used in a wide range of antiperspirant and deodorant formulations.

Aluminum hydroxychloride has been used on a growing scale for many years throughout the world as an active ingredient in antiperspirant products. It is generally well tolerated also on long-term use. Although Locron® is being well tolerated, dermatological trials should be carried with the final antiperspirant/deodorant formulation to establish beyond doubt that no skin irritation is caused by the combination of products, each of which is in itself non-irritant.

### **Application**

The Locron® grades are widely used in perspiration-reducing preparations. Locron® P is most suitable for anhydrous products like powder-sprays, suspension-sprays or sticks. Locron® S may be used to generate aqueous solutions of aluminum chlorohydrate. Locron® L, Locron L.ZA and Locron® LIC are used for roll-ons, pump-sprays, emulsions and aqueous gels. All Locron® grades can also be incorporated in skin lotions, skin creams and shaving lotions to achieve a slight astringent effect.

### **Usage Concentration**

For antiperspirant products using Locron® as the sole active ingredient, the active concentration of aluminum chlorohydrate is chosen in the range of 5 - 25%. If combined with other active ingredients, the active content can be lowered accordingly.

For aqueous formulations like pump sprays or roll-ons a 24 h effect is generally seen at about 10% active concentration (i.e. 20% Locron® L, L.ZA or LIC).

### **Solubility**

Solid Locron® types (Locron® P, Locron® S) are soluble in water up to approx. 60% (m/m). They are almost insoluble in absolute ethanol and only sparingly soluble in higher molecular weight monovalent and multivalent alcohols. Liquid Locron® types (Locron® L, L.ZA, LIC) are miscible with ethanol or glycerol in any ratio.

Locron® S should be used rather than Locron® P for preparing aqueous solutions because the former dissolves more rapidly in water. Moreover solutions of Locron® S have greater clarity, although optimum clarity is obtained only after the solution has been left to stand for about 24 h.

Locron® LIC is especially suited for clear formulations, because it shows improved clarity compared to Locron® L or L.ZA. Additionally, due to the reduced iron content of Locron® LIC, problems with yellowing of clothes are minimized.

### **Stability**

Locron® is stable in an acid aqueous medium, but aluminum hydroxide is precipitated if the pH is adjusted to above pH 5 with base.

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If heated, it releases water and hydrochloric acid. Rising temperatures lead in turn to the formation of aluminum hydroxide gels,  $\gamma$ -aluminum oxide and finally  $\alpha$ -aluminum oxide (corundum).

## Storage

Clariant guarantees 4 years storage stability for all Locron<sup>®</sup> types stored in originally sealed containers.

Locron<sup>®</sup> S and P are hygroscopic and should therefore be kept in a dry place. Once containers have been opened, their contents should be used without delay since there is a risk of agglomeration caused by the adsorption of moisture from the atmosphere. Agglomerates are frequently the cause of valve blockage in aerosol products.

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