

# Locron®

Antiperspirant agent for the cosmetic industry

## Composition

Aluminium hydroxychloride  
INCI name: Aluminum Chlorohydrate

## Product properties <sup>\*)</sup>

### Appearance (20 °C)

Locron S	fine flakes
Locron P	powder (mind. 99.5 %: max. 40 µm)
Locron L	liquid (approx. 50 % aqueous solution)
Locron LIC	liquid (approx. 50 % aqueous solution)
Locron LIF	liquid (approx. 50 % aqueous solution)

### Aluminium (% m/m)

Locron S	24.4 – 25.4
Locron P	24.6 – 25.6
Locron L	12.2 – 12.7
Locron LIC	12.2 – 12.7
Locron LIF	12.2 – 12.7

### Chloride (% m/m)

Locron S	15.8 – 16.8
Locron P	16.3 – 17.3
Locron L	7.9 – 8.4
Locron LIC	7.9 – 8.4
Locron LIF	7.9 – 8.4

**pH (15 % aqueous solution)** approx. 4.2

## Iron (mg/kg)

Locron S	max. 100
Locron P	max. 100
Locron L	max. 50
Locron LIC	max. 35
Locron LIF	max. 10

## Manufacture

Reaction of aluminum or compounds containing aluminium with hydrochloric acid.

## Profile

The Locron grades are aluminum hydroxychlorides in solid form (Locron S, Locron P) or as a 50 % aqueous solutions (Locron L, LIC, LIF).

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.

A\*) 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.

## 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 LIC and Locron LIF 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 adstringent effect.

## Usage Concentration

For antiperspirant products using Locron as the sole 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 pumpsprays or roll-ons a 24 h effect is generally seen at about 10 % active concentration (i.e. 20 % Locron L or Locron 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, LIC, LIF) 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 hours.

Locron LIC and Locron LIF are especially suited for clear formulations, because they show improved clarity compared to Locron L. Additionally, due to the reduced iron content of Locron LIC and Locron LIF, 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.

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

## Storage

Clariant guarantees 2 years storage stability for all Locron types stored in originally sealed containers.

Locron 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.

This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as guaranteeing specific properties of the products described on their suitability for a particular application. Any existing industrial property rights must be observed. The quality of our products is guaranteed under our General Conditions of Sale.