

Cithrol Monoesters

Glyceryl monoesters – non-emulsifying, self-emulsifying and acid stable grades

Glyceryl monoesters are widely used in personal care applications as emulsifiers, stabilisers, lubricants, dispersing aids and plasticisers. The most common derivative is glyceryl monostearate, however, glyceryl monooleate may be made available on request. All solid grades are supplied in easy-to-handle pastillated form.

INCI names for the principal glyceryl monoesters available are:

Product name	INCI name
Cithrol GMS N/E	Glyceryl Stearate
Cithrol GMS S/E	Glyceryl Stearate SE
Cithrol GMS A/S	Glyceryl Stearate (and) PEG-100 Stearate
Cithrol GMO	Glyceryl Oleate

Glyceryl monoesters are inherently lipophilic and usually have HLB values of 3-5. Without an auxiliary surfactant they are considered non-emulsifying (N/E), although in some circumstances they do produce water-in-oil (w/o) emulsions.

The inclusion of a small percentage of soap increases the HLB to a level where oil-in-water (o/w) emulsions are produced. This type of glyceryl monoester is classified as self-emulsifying (S/E).

An acid stable glyceryl monoester is recommended for low pH systems, and systems containing high concentrations of electrolytes or cationic surfactants. Conventional grades of self-emulsifying glyceryl monoesters typically contain sodium or potassium stearate as the auxiliary emulsifier which are unstable in these environments.

Glyceryl Monostearate (Cithrol GMS N/E, Cithrol GMS S/E)

Applications

- water-in-oil emulsions
- oil-in-water emulsions
- moisturising and nourishing creams
- cleansing and cold creams
- sunscreen products
- protective baby creams
- colour cosmetics

The wide range of Cithrol GMS variants show differing specifications for monoglyceride, free glyceride and soap contents which influence their performance characteristics in various emulsion systems. Individual specification details are available on request from the personal care sales department.

Cithrol GMS N/E or S/E can be used as a base material in many types of creams and lotions, functioning as a primary or secondary emulsifier to confer stability, body and emollience to a system.

Acid Stable Glyceryl Monostearate (Cithrol GMS A/S)

Applications

- general skin creams and lotions
- alpha hydroxy acid/lactic acid skin creams
- hair conditioning rinses
- antiperspirants
- peroxide lotions

Cithrol GMS A/S, a blend of glyceryl stearate and nonionic PEG-ester, has an HLB value of 11 and is designed to confer maximum emulsion stability to a number of complex personal care systems.

Cithrol GMS A/S is recommended as the primary or secondary emulsifier in general skin creams and lotions and some hair care products. It is particularly useful in emulsion systems over a wide pH range including alpha hydroxy acid or buffered skin creams, hair conditioning rinses, antiperspirants based on astringent aluminium salts, and peroxide lotions.

General skin creams and lotions

Cithrol GMS A/S may be employed as the primary emulsifier in all types of skin creams and lotions to produce soft emulsions with high gloss and fine particle size. Emulsifying properties may be tailored to suit almost all oil phase components by employing combinations of Cithrol GMS A/S with any of Croda's nonionic emulsifying waxes eg Polawax (proprietary product), Cosmowax, Crodex or Cromul ranges.

AHA/Lactic acid skin creams

Acid-balanced creams and lotions can be simply formulated using Cithrol GMS A/S to produce smooth, stable emulsions. AHAs are used in many different products such as face creams/masks and cleansers. To ensure formulations function effectively it is important that the emulsion delivery system is stable at the effective pH level, typically 3.5-4.5. In addition, lactic acid and other AHAs may also function as natural moisturisers and skin conditioners.

Hair conditioning rinses

Cithrol GMS A/S is compatible with many of the cationic components which form the basis of hair conditioning rinses. In these formulations, Cithrol GMS A/S will produce a rich, translucent, high gloss emulsion base with good rinse-off properties.

Antiperspirants

The active components of most popular types of antiperspirants are astringent salts such as aluminium chlorhydrate. As solutions of such salts are acidic (about pH 3), it is necessary to employ an acid stable emulsifier for the production of creams and lotions.

Cithrol GMS A/S is ideally suited for this application and can be used alone or in combination with secondary emulsifiers, viscosity builders and emollients.

Peroxide lotions

Peroxide lotions can form the basis of hair bleaches or neutralising creams or lotions. Such preparations are usually slightly acidic in nature, in order to ensure stability of the hydrogen peroxide.

Health and safety

Glyceryl monoesters, including self-emulsifying, non-emulsifying and acid stable grades, are well-established cosmetic raw materials and are generally considered to present no special hazards.

Non-warranty

Information in this leaflet is given in good faith. Croda Chemicals Ltd and its associate companies cannot assume any liability expressed or implied in the presentation of this data, nor should information contained herein be construed as granting licence to practise any methods or compositions of matter covered by British or other patents.