HYDROXYCITRONELLAL

CAS N°: 107-75-5

Empirical formula: $C_{10}H_{20}O_2$

Synonyms: **Citronellalhydrate**
3,7-Dimethyl-7-hydroxyoctanal
Octanal, 7-hydroxy-3,7-dimethyl-
Oxydihydrocitronellal
Laurinal, Laurine

History: Initial reviews: March 1987, September 2000

Current revision date: January 2001

Implementation date: for new submissions*: Not applicable

for existing fragrance compounds*: Not applicable

Next review date: 2006

* This date applies to the supply of fragrance compounds (formulas) only, not to the finished products in the marketplace.

STANDARD: **RESTRICTED**

RESTRICTIONS:

Limits in the finished product:

Skin-contact products:

Leave-on products: 1%

Rinse-off products: 1%
including household cleaning products

Non skin-contact products: 10%

Note box:

Fragrance material specification: Not applicable

Contribution from other sources: None known

Critical effect: **Sensitization**

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RIFM summaries:

An HRIPT study with 10% in diethyl phthalate (DEP) showed no reactions in 31 male and female volunteers (RIFM, 1991). Another HRIPT tested 2.5% of the material in 75%/25% ethanol/DEP. No reactions were observed in the 65 male and female volunteers (RIFM, 1987; Letizia and Api, 2001).

In 29 sensitized subjects, 25 (or 86%) were able to use a cologne-type product containing up to 1% hydroxycitronellal without exhibiting any adverse reactions. These studies suggest that there is little risk for persons already sensitized reacting to concentrations of 0.05% in a bar soap or 0.03% in a moisturizing lotion. These studies also show that in subjects where sensitization was induced by predictive testing, no serious adverse dermatological conditions or clinical disease developed (Api and Letizia, 2001)

Rexpan Rationale / Conclusion:

Hydroxycitronellal received extensive predictive testing by RIFM in the past. The 1990 RIFM response (Suskind, 1990): "After reviewing all of the data, the RIFM Expert Panel is of the opinion that additional studies for the safety of hydroxycitronellal are not indicated. One percent hydroxycitronellal is not likely to induce allergic sensitization in humans with repeated exposure. In other words, the risk is minimal. However, if a person is already sensitized, they do run the risk of developing clinical allergic reactions to concentrations as low as 0.05% in a cologne. It appears from the recent studies that there is little risk for persons already sensitized reacting to concentrations of 0.05% in a bar soap or 0.03% in a moisturizing lotion."

In the past decade no compelling evidence has emerged to challenge those conclusions. In fact, the number of reports of hydroxycitronellal allergy has decreased in the 1990s (from 55 in 1980s to 14 in 1990s) (September 1999).

The RIFM Expert Panel reviewed the critical effect data for hydroxycitronellal and recommended no change to the Standard (January 2001).

References:

Api A.M and Letizia C.S. (2001). Evaluation of the sensitization potential of hydroxycitronellal in an extended product use test. The Toxicologist, 60(1), 61.

Letizia, C.S. and Api A.M. (2001). Update on the dermal sensitization potential of hydroxycitronellal used in fragrances. The Toxicologist, 60(1), 61.

Research Institute for Fragrance Materials, Inc. (1991) Human repeated insult patch test (HRIPT). RIFM report number 28274, April 16.

Research Institute for Fragrance Materials, Inc. (1987). Repeated insult patch test (HRIPT). RIFM report number 7973, July 20.

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Suskind R.R. (1990). Sensitization studies – recent developments with hydroxycitronellal and other materials. Proceedings from the Fifth RIFM International Information Exchange, May 9, 1990, London.