

C I N N A M I C A L D E H Y D E

CAS N°: 104-55-2

Empirical formula: C₉H₈O
C₆H₅-CH=CH-CHO

Synonyms: Cinnamal
Cinnamaldehyde
Phenylacrolein
3-Phenyl-2-propenal
3-Phenyl-2-propen-1-al
'Cassia aldehyde'

History: Initial reviews: March 1978, January 2004

Current revision date: Remains January 2004**

Implementation date: for new submissions*: June 11, 2006**

for existing fragrance compounds*: June 11, 2007**

Next review date: 2009

* 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: 0.05%

Rinse-off products: 0.05%

including household cleaning products

Non skin contact products:

Due to negligible skin contact, the concentration of the fragrance ingredient should not exceed the usual concentration of the fragrance compound in the finished product***

Note box: Names of essential oils containing cinnamic aldehyde or other sources of it, which should also be considered in the application of the Standard, are provided in Annex 1. Maximum percentage of the reference material is included for use when no analytical data is available.

This Standard replaces the one issued as part of the 38th Amendment.

** The compliance time is only linked to changes resulting from taking into account the new rules for non-skin contact products (see also IL 731).

*** These are the restrictions as for category 11 in the new QRA risk assessment concept (see IL 745). Category 11 includes all non-skin contact or incidental skin contact products.

Due to negligible skin contact, the concentration of a fragrance ingredient should not exceed the usual concentration of the fragrance compound in the finished product.

For example, hypothetically if the usual concentration of a fragrance compound in the final product, for example a candle, is at 5%, then any individual fragrance ingredient (in this case cinnamic aldehyde) must not exceed 5% in the candle.

C I N N A M I C A L D E H Y D E**Note box (continued):**

The Standard on cinnamic aldehyde covers and replaces the former existing Standards on cassia oil, cinnamon bark oil as well as cinnamic aldehyde – methyl anthranilate schiff base. The existing Standards for cinnamic aldehyde, cassia oil, cinnamic aldehyde – methyl anthranilate schiff base and cinnamon bark oil are no longer valid.

Fragrance Material Specification: Not applicable

Contribution from other sources: see Annex 1

Critical effect: **Sensitization**

RIFM summaries:

Numerous human and animal studies have been conducted on cinnamic aldehyde (Cocchiara et al., 2004). An HRIPT using male and female volunteers treated with 0.5% (591 µg/cm²) cinnamaldehyde in two different vehicles (3:1 diethyl phthalate:ethanol and 3:1 ethanol:diethyl phthalate) yielded 0/22 and 0/19 reactions, respectively (RIFM, 2002a and 2002b). Danneman, et al., (1983) reported the results for RRIPTs conducted in human volunteers with 1.25, 1.0, 0.5, and 0.1% cinnamaldehyde in ethanol. Reactions were observed at 1 and 1.25%, but not at 0.5 and 0.1%, resulting in an estimated NOEL of 0.5%.

A number of Local Lymph Node Assays were also conducted on cinnamaldehyde. The mean EC3 value was calculated to be 1.1% (or 280 µg/cm²).

Rexpan Rationale / Conclusion:

After reviewing the critical effect data, the Panel concluded that there were sufficient data to support this Standard (January, 2003).

References:

Cocchiara J. Letizia C.S., Lalko J. Lapczynski A. and Api A.M. (2004). Fragrance Material Review on cinnamaldehyde. Submitted to Food and Chemical Toxicology.

Danneman P.J., Booman K.A., Dorsky J., Kohrman K.A., Rothenstein A.S., Sedlak R.I. and Steltenkamp R.J. (1983). Cinnamic aldehyde: A survey of consumer patch-test sensitization. Food and Chemical Toxicology, 21(6), 721-725. Report number 1468.

Research Institute for Fragrance Materials, Inc. (2002a). Repeated insult patch test of cinnamaldehyde. RIFM report number 41692, August 27.

Research Institute for Fragrance Materials, Inc. (2002b). Repeated insult patch test of cinnamaldehyde. RIFM report number 41693, August 27.