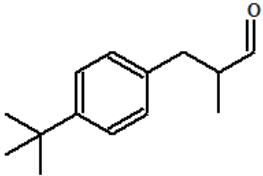


**p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA)**

|                  |  |                           |   |
|------------------|--|---------------------------|---|
| <b>CAS-No.:</b>  | 80-54-6  | <b>Molecular formula:</b> | C <sub>14</sub> H <sub>20</sub> O   |
|                  | The scope of this Standard includes, but is not limited to the CAS number(s) indicated above; any other CAS number(s) used to identify this fragrance ingredient should be considered in scope as well.  | <b>Structure:</b>         |  |
| <b>Synonyms:</b> | Benzenepropanal, 4-(1,1-dimethylethyl)-alpha-methyl-p-t-Bucinal<br>2-(4-tert-Butylbenzyl)propionaldehyde<br>p-t-Butyl-alpha-methylhydrocinnamaldehyde<br>Butylphenyl methylpropional<br>alpha-Methyl- $\beta$ -(p-t-butylphenyl)propionaldehyde<br>Lilestralis (commercial name)<br>Lilial (commercial name)<br>Lysmeral (commercial name) |                           |   |

|                 |                          |                     |                               |      |
|-----------------|--------------------------|---------------------|-------------------------------|------|
| <b>History:</b> | <b>Publication date:</b> | 2020 (Amendment 49) | <b>Previous Publications:</b> | 2003 |
|                 |                          |                     |                               | 2007 |
|                 |                          |                     |                               | 2008 |
|                 |                          |                     |                               | 2013 |
|                 |                          |                     |                               | 2015 |

|                              |   |                   |
|------------------------------|---|-------------------|
| <b>Implementation dates:</b> | <b>For new submissions*:</b>  | February 10, 2021 |
|                              | <b>For existing fragrance compounds*:</b>   | February 10, 2022 |
|                              | *These dates apply to the supply of fragrance mixtures (formulas) only, not to the finished consumer products in the marketplace. |                   |

**RECOMMENDATION:**

**RESTRICTION / PROHIBITION**

**FRAGRANCE INGREDIENT PROHIBITION:**

p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) should not be used for any finished product application included under IFRA Categories 1 and 6 (lipsticks and oral care products).

**RESTRICTION LIMITS IN THE FINISHED PRODUCT (%):**

**p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA)**

|             |                    |              |         |
|-------------|--------------------|--------------|---------|
| Category 1  | 0.0 % (Prohibited) | Category 7A  | 0.040 % |
| Category 2  | 0.090 %            | Category 7B  | 0.040 % |
| Category 3  | 0.040 %            | Category 8   | 0.017 % |
| Category 4  | 1.4 %              | Category 9   | 0.10 %  |
| Category 5A | 0.060 %            | Category 10A | 0.10 %  |
| Category 5B | 0.050 %            | Category 10B | 0.63 %  |
| Category 5C | 0.050 %            | Category 11A | 0.017 % |
| Category 5D | 0.017 %            | Category 11B | 0.017 % |
| Category 6  | 0.0 % (Prohibited) | Category 12  | 16 %    |

**FLAVOR REQUIREMENTS:**

Due to the possible ingestion of small amounts of fragrance ingredients from their use in products in Categories 1 and 6, materials must not only comply with IFRA Standards but must also be recognized as safe as a flavoring ingredient as defined by the IOFI Code of Practice ([www.iofi.org](http://www.iofi.org)). For more details see chapter 1 of the Guidance for the use of IFRA Standards.

**CONTRIBUTIONS FROM OTHER SOURCES:**
**SEE ANNEX II**
**ANNEX II**

| p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) | CAS number (Aldehyde) | Schiff base                  | CAS number (Schiff base) | Level of restricted aldehyde in the Schiff base (%) |
|--|-----------------------|------------------------------|--------------------------|---|
| p-t-Butyl- $\alpha$ -  | 80-54-6               | Lysmeral-methyl anthranilate | 91-51-0                  | 60.6  |

**p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA)**

|   |  |                 |  |  |
|---|--|-----------------|--|--|
| methylhydrocinnamic aldehyde (Lysmeral) |  | (or Verdantiol) |  |  |
|---|--|-----------------|--|--|

|                                       |                     |   |
|---------------------------------------|---------------------|---|
| <b>INTRINSIC PROPERTY MANAGEMENT:</b> | <b>DRIVING RISK</b> | <b>DERMAL SENSITIZATION AND SYSTEMIC TOXICITY</b> |
|---------------------------------------|---------------------|---|

**RIFM SUMMARIES:**

Recommended concentration levels are based on a comprehensive safety assessment, considering various endpoints. Depending on the outcome of the safety assessment, it might be one or more endpoint(s) that will drive the derivation of the concentration levels. If more than one endpoint is of relevance, the recommended concentration levels for each product category is derived from comparing maximum permitted level per endpoint consideration (dermal sensitization and/or systemic toxicity). Such recommended concentration levels correspond to the lowest level obtained per category.

Additional information is available in the RIFM safety assessment for p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA), which can be downloaded from the RIFM Safety Assessment Sheet Database:

<http://fragrancematerialsafetyresource.elsevier.com/>.

**EXPERT PANEL FOR FRAGRANCE SAFETY RATIONALE / CONCLUSION:**

The Expert Panel for Fragrance Safety reviewed all the available data for p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) and recommends the limits for the 12 different product categories, which provide the acceptable use levels of p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) in the various product categories.

In addition, they recommend not to use p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) in any finished product application included in Categories 1 and 6.

**REFERENCES:**

The IFRA Standard p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) is based in at least one of the following publications:

- The RIFM Safety Assessment on p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA) is available at the RIFM Safety Assessment Sheet Database: <http://fragrancematerialsafetyresource.elsevier.com/>.

- Api A.M., Belsito D., Bruze M., Cadby P., Calow P., Dagli M. L., Dekant W., Dent M., Ellis G., Fryer A. D., Fukayama M., Griem P., Hickey C., Kromidas L., Lalko J., Liebler D.C., Miyachi Y., Politano V.T., Renskers K., Ritacco G., Salvito D., Schultz T.W., Sipes I. G., Smith B., Vitale D., Wilcox D.K. (2015). Criteria for the Research Institute for Fragrance Materials, Inc. (RIFM) safety evaluation process for fragrance ingredients. Food Chem Toxicol. 2015 Aug;82 Suppl:S1-S19 (doi: 10.1016/j.fct.2014.11.014). ([http://fragrancematerialsafetyresource.elsevier.com/sites/default/files/Criteria\\_Document\\_Final.pdf](http://fragrancematerialsafetyresource.elsevier.com/sites/default/files/Criteria_Document_Final.pdf)).

**p-tert-Butyl- $\alpha$ -methylhydrocinnamic aldehyde (p-BMHCA)**

- IDEA project (International Dialogue for the Evaluation of Allergens) Final Report on the QRA2: Skin Sensitisation Quantitative Risk Assessment for Fragrance Ingredients, September 30, 2016 (<http://www.ideaproject.info/uploads/Modules/Documents/qra2-dossier-final--september-2016.pdf>).
- Salvito D.T., Senna R. J., Federle T.W. (2002). A framework for prioritizing fragrance materials for aquatic risk assessment. *Environ Toxicol Chem.* 2002;21:1301-1308. (<https://www.ncbi.nlm.nih.gov/pubmed/12069318>).
- SCCS (Scientific Committee on Consumer Safety), Opinion on the safety of Butylphenyl methylpropional (p-BMHCA) in cosmetic products - Submission II, preliminary version of 14 December 2017, final version of 10 May 2019, SCCS/1591/2017 ([https://ec.europa.eu/health/sites/health/files/scientific\\_committees/consumer\\_safety/docs/sccs\\_o\\_213.pdf](https://ec.europa.eu/health/sites/health/files/scientific_committees/consumer_safety/docs/sccs_o_213.pdf)).

Additional information on the application of IFRA Standards is available in the Guidance to IFRA Standards, publicly available in [www.ifraorg.org](http://www.ifraorg.org).