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Short review

RIFM fragrance ingredient safety assessment, Fenchyl alcohol, CAS registry number 1632-73-1

A.M. Api [a, *], D. Belsito [b], S. Bhatia [a], M. Bruze [c], P. Calow [d], M.L. Dagli [e], W. Dekant [f], A.D. Fryer [g], L. Kromidas [a], S. La Cava [a], J.F. Lalko [a], A. Lapczynski [a], D.C. Liebler [h], Y. Miyachi [i], V.T. Politano [a], G. Ritacco [a], D. Salvito [a], J. Shen [a], T.W. Schultz [j], I.G. Sipes [k], B. Wall [a], D.K. Wilcox [a]

[a] Research Institute for Fragrance Materials, Inc., 50 Tice Boulevard, Woodcliff Lake, NJ 07677, USA
[b] Columbia University Medical Center, Department of Dermatology, 161 Fort Washington Ave., New York, NY 10032, USA
[c] Malmo University Hospital, Department of Occupational & Environmental Dermatology, Sodra Forstadsgatan 101, Entrance 47, Malmo SE-20502, Sweden
[d] University of Nebraska Lincoln, 230 Whittier Research Center, Lincoln, NE 68583-0857, USA
[e] University of Sao Paulo, School of Veterinary Medicine and Animal Science, Department of Pathology, Av. Prof. dr. Orlando Marques de Paiva, 87, Sao Paulo CEP 05508-900, Brazil
[f] University of Wuerzburg, Department of Toxicology, Versbacher Str. 9, 97078 Würzburg, Germany
[g] Oregon Health Science University, 3181 SW Sam Jackson Park Rd., Portland, OR 97239 USA
[h] Vanderbilt University School of Medicine, Department of Biochemistry, Center in Molecular Toxicology, 638 Robinson Research Building, 2200 Pierce Avenue, Nashville, TN 37232-0146, USA
[i] Department of Dermatology, Kyoto University Graduate School of Medicine, 54 Kawahara-cho, Shogoin, Sakyo-ku, Kyoto 606-8507, Japan
[j] The University of Tennessee, College of Veterinary Medicine, Department of Comparative Medicine, 2407 River Dr., Knoxville, TN 37996- 4500, USA
[k] Department of Pharmacology, University of Arizona, College of Medicine, 1501 North Campbell Avenue, P.O. Box 245050, Tucson, AZ 85724-5050, USA

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ABSTRACT

The use of this material under current use conditions is supported by the existing information.

This material was evaluated for genotoxicity, repeated dose toxicity, developmental toxicity, reproductive toxicity, local respiratory toxicity, phototoxicity, skin sensitization potential, as well as, environmental safety. Repeated dose toxicity was determined to have the most conservative systemic exposure derived NO[A]EL of 15 mg/kg/day. A gavage 13-week subchronic toxicity study conducted in rats on a suitable read across analog resulted in a MOE of 10,714 while assuming 100% absorption from skin contact and inhalation. A MOE of >100 is deemed acceptable.

* Corresponding author.
E-mail address: AApi@rifm.org (A.M. Api).

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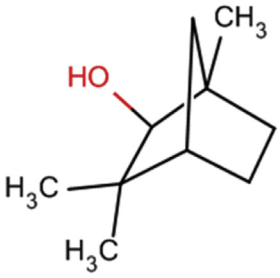
CAS Registry Number: 1632-73-1



Abbreviation list:
2-Box Model – a RIFM, Inc. proprietary *in silico* tool used to calculate fragrance air exposure concentration.
97.5th percentile – The concentration of the fragrance ingredient is obtained from examination of several thousand commercial fine fragrance formulations. The upper 97.5th percentile concentration is calculated from these data and is then used to estimate the dermal systemic exposure in ten types of the most frequently used personal care and cosmetic products. The dermal route is the major route in assessing the safety of fragrance ingredients. Further explanation of how the data were obtained and of how exposures were determined has been previously reported by Cadby et al. (2002) and Ford et al. (2000).
AF – Assessment Factor.
BCF – Bioconcentration Factor.
DEREK – Derek nexus is an *in silico* tool used to identify structural alerts.
DST – Dermal Sensitization Threshold.
ECHA – European Chemicals Agency.
EU – Europe/European Union.
GLP – Good Laboratory Practice.
IFRA – The International Fragrance Association.
LOEL – Lowest Observable Effect Level.
MOE – Margin of Exposure.
MPPD – Multiple-Path Particle Dosimetry. An *in silico* model for inhaled vapors used to simulate fragrance lung deposition.
NA – North America.
NESIL – No Expected Sensitization Induction Level.
NOAEC – No Observed Adverse Effect Concentration.
NOAEL – No Observed Adverse Effect Level.
NOEC – No Observed Effect Concentration.
OECD – Organisation for Economic Co-operation and Development.
OECD TG – Organisation for Economic Co-operation and Development Testing Guidelines.
PBT – Persistent, Bioaccumulative, and Toxic.
PEC/PNEC – Predicted Environmental Concentration/Predicted No Effect Concentration.
QRA – Quantitative Risk Assessment.
REACH – Registration, Evaluation, Authorisation, and Restriction of Chemicals.
RIFM – Research Institute for Fragrance Materials.
RQ – Risk Quotient.
TTC – Threshold of Toxicological Concern.
UV/Vis Spectra – Ultra Violet/Visible spectra.
VCF – Volatile Compounds in Food.
VoU – Volume of Use.
vPvB – (very) Persistent, (very) Bioaccumulative.
WOE – Weight of Evidence.

RIFM's Expert Panel* concludes that this material is safe under the limits described in this safety assessment.
This safety assessment is based on RIFM's Criteria Document (Api et al., 2015) and should be referred to for clarifications.
Each endpoint discussed in this safety assessment reviews the relevant data that were available at the time of writing (version number in the top box is indicative of the date of approval based on a two digit month/day/year), both in the RIFM database (consisting of publicly available and proprietary data) and through publicly available information sources (i.e., SciFinder and PubMed). Studies selected for this safety assessment were based on appropriate test criteria such as, acceptable guidelines, sample size, study duration, route of exposure, relevant animal species, most relevant testing endpoints, etc. A key study for each endpoint was selected based on the most conservative end-point value (e.g., PNEC, NOAEL, LOEL, and NESIL).
*RIFM's Expert Panel is an independent body that selects its own members and establishes its own operating procedures. The Expert Panel is comprised of internationally known scientists that provide RIFM guidance relevant to human health and environmental protection.

Summary: The use of this material under current use conditions is supported by the existing information.
This material was evaluated for genotoxicity, repeated dose toxicity, developmental toxicity, reproductive toxicity, local respiratory toxicity, phototoxicity, skin sensitization potential, as well as, environmental safety. Repeated dose toxicity was determined to have the most conservative systemic exposure derived NO[A]EL of 15 mg/kg/day. A gavage 13-week subchronic toxicity study conducted in rats on a suitable read across analog resulted in a MOE of 10714 while assuming 100% absorption from skin contact and inhalation. A MOE of >100 is deemed acceptable.

Human Health Safety Assessment
Genotoxicity: Not genotoxic (RIFM, 2013c; RIFM, 2013b)
Repeated dose toxicity: NOAEL = 15 mg/kg/day (Gaunt, 1971)
Developmental and reproductive toxicity: NOAEL = 300 mg/kg/day (RIFM, 2011)
Skin sensitization: Not a sensitization concern. Exposure is below the DST (RIFM, 1976)
Phototoxicity/photoallergenicity: Not phototoxic/photoallergenic (UV spectra, RIFM Database)
Local respiratory toxicity: No NOAEC available. Exposure is below the TTC.

Environmental Safety Assessment
Hazard Assessment:
Persistence: Critical Measured Value: 74% (OECD 301F) (RIFM, 1997a)
Bioaccumulation: Screening Level: 57.35 L/kg (EPISUITE ver 4.1)
Ecotoxicity: Screening Level: 48 h *Dapnia magna* LC50: 13.38 mg/l (EPISUITE ver 4.1)
Conclusion: Not PBT or vPvB as per IFRA Environmental Standards
Risk Assessment:
Screening-Level: PEC/PNEC (North America and Europe) > 1 (Salvito et al., 2002)
Critical Ecotoxicity Endpoint: 48 h *Dapnia magna* LC50: 13.38 mg/l (EPISUITE ver 4.1)
RIFM PNEC is: 1.338 μg/l
- **Revised PEC/PNECs (2011 IFRA VoU):** North America and Europe <1