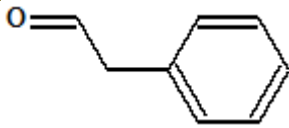


Phenylacetaldehyde

CAS N°:	122-78-1	Empirical formula:	C ₈ H ₈ O
Structure:			
Synonyms:	Benzeneacetaldehyde Benzylcarboxaldehyde Hyacinthin 1-Oxo-2-phenylethane Phenylacetic aldehyde Phenyl Acetic Aldehyde (pure) alpha-Tolualdehyde alpha-Toluic aldehyde		

History:	Initial reviews:	October 1975, February 1980		
	Current revision date:	2006		
	Implementation date:	For new submissions*:	June 11, 2007	
		For existing fragrance compounds*:	June 11, 2008	
	Next review date	2011		

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

RECOMMENDATION:

RESTRICTED

RESTRICTIONS:

Limits in the finished product:			
Category 1 See Note box (1)	0.02 %	Category 7	0.04 %
Category 2	0.02 %	Category 8	0.6 %
Category 3	0.09 %	Category 9	3.0 %
Category 4	0.3 %	Category 10	2.5 %
Category 5	0.1 %	Category 11	See Note Box
Category 6	0.4 %		
Note box:			
Category 11 includes all non-skin contact or incidental skin contact products. Due to the negligible skin contact from these types of products there is no justification for a restriction of the concentration of this fragrance ingredient in the finished product.			
This Standard Cancels and replaces the existing one on phenylacetaldehyde , which was based on the no longer supported 'quenching' phenomenon.			
Fragrance material specifications:	N/A		

CONTRIBUTION FROM OTHER SOURCES:

None to consider (see also the note on contributions from other sources in the **introduction to the IFRA Standards**)

Phenylacetaldehyde

CRITICAL EFFECT:

SENSITIZATION

RIFM SUMMARIES:

Phenylacetaldehyde - Sensitization Potency Estimation Based on Weight of Evidence

LLNA weighted mean EC3 values ($\mu\text{g}/\text{cm}^2$) [no. studies]	Potency Classification Based on Animal Data ²	Human Data			WoE NESIL ³ ($\mu\text{g}/\text{cm}^2$)
		NOEL – HRIPT (induction) ($\mu\text{g}/\text{cm}^2$)	NOEL – HMT (induction) ($\mu\text{g}/\text{cm}^2$)	LOEL ¹ (induction) ($\mu\text{g}/\text{cm}^2$)	
962 [2]	Moderate	591	NA	1181	590

NOEL = No observed effect level; HRIPT = Human Repeat Insult Patch Test; MAX = Human Maximization Test;

LOEL = lowest observed effect level; NA = Not Available

¹ Data derived from HRIPT or Human Max tests

² Gerberick *et al.*, 2001

³ WoE NESIL limited to two significant figures

REXPAN RATIONALE / CONCLUSION:

The RIFM Expert Panel reviewed the critical effect data for phenylacetaldehyde and based on the weight of evidence established the No Expected Sensitization Induction Level (NESIL) as 590 $\mu\text{g}/\text{cm}^2$. They recommend the limits for the 11 different product categories, which are the acceptable use levels of phenylacetaldehyde in the various product categories. These were derived from the application of the exposure-based quantitative risk assessment approach for fragrance ingredients, which is detailed in the QRA Expert Group Technical Dossier of March 15, 2006.

REFERENCES:

D.A.Basketter, Z.M.Wright, E.V.Warbrick, R.J.Dearman, I.Kimber, C.A.Ryan, G.F.Gerberick and I.R.White (2001). Human potency predictions for aldehydes using the local lymph node assay. *Contact Dermatitis*, 45(2), 89-94.

D.A.Basketter, N.Gilmour, R.J.Dearman, I.Kimber, C.A.Ryan and G.F. Gerberick (2003). Classification of skin sensitisation potency using the Local Lymph Node Assay. *The Toxicologist*, 72(S-1), 101.

Gerberick, GF. et. al. (2001) Contact allergenic potency: Correlation of human and local lymph node assay data. *American Journal of Contact Dermatitis*, 12(3), 156-161

QRA Expert Group (AM Api, DA Basketter, PA Cadby, M-F Cano, G Ellis, GF Gerberick, P Griem, PM McNamee, CA Ryan and R Safford), Dermal Sensitization Quantitative Risk Assessment (QRA) for Fragrance Ingredients, Technical Dossier, March 15, 2006, <http://www.rifm.org/pub/publications.asp>.

Research Institute for Fragrance Materials, Inc (2003). Repeated insult patch test in human subjects with phenylacetaldehyde. RIFM report number 44245 (RIFM, Woodcliff Lake, NJ USA).

Research Institute for Fragrance Materials, Inc (2004). Repeated insult patch test in human subjects with phenylacetaldehyde. RIFM report number 45132 (RIFM, Woodcliff Lake, NJ USA).