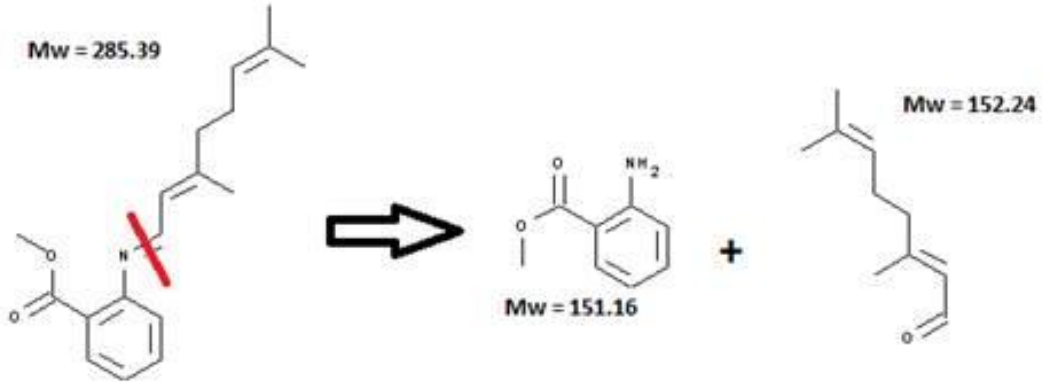
Annex II to the IFRA Standards – 47th Amendment

The IFRA Scientific Committee examined the physicochemical properties of Schiff bases and concluded that, based on the available information, these materials should be considered under contributions from other sources. By default, the stoichiometric presence of the aldehydes of the Schiff bases is taken into account assuming 100% dissociation. An indicative list of Schiff bases incorporating aldehydes covered by an IFRA Standard of restriction is reported at page 2. These Schiff bases must be taken into account for determination of the maximum use level of the respective aldehydes.

The calculation reported below has been made for the below listed Schiff bases used in the fragrance industry. Contributions of restricted aldehydes from all other Schiff bases should be calculated in the same way.

Please note that the hydrolysis rate of 100% might be replaced by a lower value if robust data on the specific Schiff base in the specific end product exist.

Example Citral-methyl anthranilate:



152.24 / 285.39 namely 53.34 % of the Schiff base mass has to be assigned to Citral.

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Aldehyde	CAS (Aldehyde)	Schiff base	CAS (Schiff Base)	Level of restricted aldehyde in the Schiff base (%)
α-Amylcinnamaldehyde	122-40-7	α-Amylcinnamaldehyde-methyl anthranilate (or Jasmea, Seringone)	68527-78-6	60.3
Benzaldehyde	100-52-7	Benzaldehyde methyl anthranilate (or Amandolene)	39129-16-3	44.4
p-t-Butyl-α-methylhydrocinnamic aldehyde (Lysmeral)	80-54-6	Lysmeral-methyl anthranilate (or Verdantiol)	91-51-0	60.6
Cinnamic aldehyde	104-55-2	Cinnamic aldehyde methyl anthranilate	94386-48-8	49.8
Citral	5392-40-5	Citral-methyl anthranilate	67801-47-2	53.3
2,4-Dimethylcyclohex-3-ene-1-carbaldehyde (Triplal)	68039-49-6	Triplal-methyl anthranilate (or Vertosine, Ligantraal, Agrumea)	68738-99-8	50.9
α-Hexylcinnamaldehyde	101-86-0	α-Hexylcinnamic aldehyde methyl anthranilate (or Jasmea H)	67924-13-4	61.8
Hydroxycitronellal	107-75-5	Hydroxycitronellal-Indole (or Indolene 50%)	68527-79-7	63.5
Hydroxycitronellal	107-75-5	Hydroxycitronellal methyl anthranilate (or Aurantiol, Aurantium, Aurantoin)	89-43-0	56.4
3 and 4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-1-carboxaldehyde (Lyral)	31906-04-4 51414-25-6	Lyral-methyl anthranilate (or Lyrantion)	67634-12-2	61.3
4-Methoxy-α-methylbenzeneproponal (Canthoxal, Fennaldehyde)	5462-06-6	Canthoxal-methyl anthranilate (or Canthalide, Anthranolene)	111753-62-9	57.3
α-Methyl-1,3-benzodioxole-5-propionaldehyde (Helional, MMDHCA)	1205-17-0	Helional-methyl anthranilate (or Helioforte)	111753-60-7	59.1