Parma, 21 January 2007
EFSA/AFC/P_M26/MIN

MINUTES OF THE 26th PLENARY MEETING OF THE SCIENTIFIC PANEL ON FOOD ADDITIVES, FLAVOURINGS, PROCESSING AIDS AND MATERIALS IN CONTACT WITH FOOD

Held in Parma on 27-29 November 2007

Adopted on 7 January 2007 by written procedure

AGENDA:

MINUTES OF THE 26th PLENARY MEETING OF THE SCIENTIFIC PANEL ON FOOD ADDITIVES, FLAVOURINGS, PROCESSING AIDS AND MATERIALS IN CONTACT WITH FOOD (AFC) Held in Parma on 27-29 November 2007

PARTICIPANTS

Panel Members:
Fernando Aguilar, Susan Barlow (Chair), Laurence Castle(2nd and 3rd day), Riccardo Crebelli, Wolfgang Dekant (1st and 2nd day), Karl-Heinz Engel (Vice Chair), Nathalie Gontard, David Gott, Sandro Grilli, Rainer Gürtler, John Christian Larsen (Vice Chair), Jean-Charles Leblanc, Catherine Leclercq (1st and 2nd day), F. Xavier Malcata (1st and 2nd day), Wim C. Mennes, Iona Pratt, Ivonne Rietjens, Paul Tobback,

Experts:
Jørn Gry (item 9)

Apologies
Herman Autrup, Maria Rosaria Milana, Fidel Toldrá.

EFSA
Torben Hallas-Møller (scientific co-ordinator of AFC Panel), Alexandre Feigenbaum (assistant scientific co-ordinator of AFC Panel), Hugues Kenigswald (assistant scientific co-ordinator of AFC Panel), Kim Rygaard Nielsen (assistant scientific co-ordinator of AFC Panel), Dimitrios Spyropoulos (assistant scientific co-ordinator of AFC Panel), Stavroula Tasiopoulou (assistant scientific co-ordinator of AFC Panel), Anne Theobald (assistant scientific co-ordinator of AFC Panel); Ilse Koenig (administrative assistant of AFC Panel), Maud Pâques (administrative secretary of AFC Panel).

Catherine Geslain-Lanéelle (Executive Director) and Giselle Gizzi (assistant to the executive director) (Special section), Riitta Maijala (Head of Risk Assessment Department) (Special session and part of 1st day)

Commission
Via teleconference: Xavier Pavard, Olga Solomon (item 7.3 and 11.2), Annette Schäfer (item 10) (DG Health and Consumer Affairs).

Special session:

The Executive Director informed about the present status of EFSA's development as well as of the recent Scientific Forum and Food Safety Summit held in Brussels celebrating EFSA's 5th anniversary. She answered questions and comments from the members, in particular in relation with the workload of the Panel, the creation of the two new Panels and the declarations of interest.

The Chair warmly thanked Ms. Geslain-Lanéelle for the briefing and for her willingness to listen to and answer the queries from the members.

1. WELCOME; APOLOGIES FOR ABSENCE

The chair welcomed the participants and the secretariat noted apologies.

2. ADOPTION OF THE AGENDA

The agenda was adopted.

3. DECLARATIONS OF INTEREST

The declarations concerning items on the agenda of this meeting are noted under the specific items on Food additives (7.1, 7.3), Flavourings (9.1.5), Food Contact Materials (10.2) and other areas (11.1).

4. MATTERS ARISING FROM THE 25TH PLENARY MEETING HELD ON 25-27 SEPTEMBER 2007

4.1. Adoption of the minutes

The draft minutes were adopted. They can be seen on:
http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178644185358.htm

5. GENERAL INFORMATION FROM EFSA AND THE COMMISSION

The proposal to split the AFC Panel has been adopted by the Commission and will be proposed to the Standing Committee on 7 December 2007. The call for experts for the 2 new Panels should be launched as soon as the official decision has been taken. If it is adopted in December, the new Panels could start during the summer 2008.

New staff will soon join the Secretariat: 2 scientific staff and 2 administrative staff.

6. FEEDBACK FROM RECENT MEETINGS OF THE SCIENTIFIC COMMITTEE, MANAGEMENT BOARD AND ADVISORY FORUM

The chair informed of the main issues from the latest meeting of the Scientific Committee held on 19-20 November. The SC adopted an opinion on qualified presumption of safety for microorganisms, which will have a future impact on any of the additives work where microorganisms are involved. The SC also adopted an opinion on botanicals. The report on the overview of testing requirements for food and feed, to which AFC members had contributed, was welcomed and will be used as the basis for the next step of the work on experimental animal welfare. The minutes of the Scientific Committee meetings can be found on:

http://www.efsa.europa.eu/EFSA/ScientificPanels/ScientificCommittee/efsa_locale-1178620753812_Meetings414.htm

There had been no meetings of the Management Board and the Advisory Forum since the previous Plenary meeting of the AFC Panel.

The minutes of the MB and AF meetings can be found on:

http://www.efsa.europa.eu/EFSA/AboutEfsa/WhoWeAre/ManagementBoard/efsa_locale-1178620753812_MeetingsMB.htm

http://www.efsa.europa.eu/EFSA/PartnersNetworks/AdvisoryForum/efsa_locale-1178620753812_MeetingsAF.htm

7. FOOD ADDITIVES

7.1. **Beeswax (EFSA-Q-2006-021)**

J.C. Larsen and C. Leclercq declared that they had been present in the JECFA meeting when this substance was discussed. It was found that this was not of conflict and they were invited to stay during the discussions.

The draft opinion was discussed and several modifications were suggested. With these modifications the opinion was adopted.

The Panel considered that the data on beeswax itself were insufficient to establish an ADI, but concluded that the safety of beeswax could be assessed, based on new available scientific literature on the main constituents of beeswax and plant waxes showing chemical structural similarities to beeswax, published since the last SCF evaluation.

The Panel concluded that the use of beeswax as an additive for the existing food uses and the proposed new food use as a carrier for flavourings is not of safety concern. The Panel noted that NOAELs identified in the toxicological studies on the main constituents of beeswax and plant waxes showing chemical structural similarities were 10 to 50 times higher than the very conservative exposure estimate of 22 mg/kg bw/day and were generally the highest doses tested. The Panel considered such margins of safety to be adequate for the assessment of beeswax which consists of components poorly absorbed from the gastrointestinal tract, that, if absorbed to any extent at all, would be metabolised to compounds also occurring endogenously.

The full opinion can be seen on

http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178672652158.htm

7.2. **Rosemary extracts (EFSA-Q-2003-140)**

Not discussed because of lack of time.

7.3. **Lycopene (EFSA-Q-2007-001+081)**

J.C. Larsen, J.-C. Leblanc and C. Leclercq declared that they had been present in the JECFA meeting when this substance was discussed. It was found that this was not of conflict and they were invited to stay during the discussions.

W. Mennes declared that his department had prepared a basic working document on lycopene derived from tomatoes as part of a contract between EFSA and RIVM concerning the re-evaluation of colours. It was found that this was not of conflict and he was invited to stay during the discussions.

The Chair declared she had also been present in the JECFA meeting when this substance was discussed. She also declared an indirect interest as her partner had been consulting on two natural colours. Although he had not consulted at all on lycopene she did not participate in the discussion and the item was chaired by vice-chair Karl-Heinz Engel.

The rapporteur presented the draft opinion and highlighted various issues. The draft was discussed to some extent, but because of lack of time the final adoption was deferred to next Plenary meeting end of January.

8. NUTRIENT SOURCES

8.1. Mixed tocopherols, tocotrienol tocopherol and tocotrienols as sources for vitamin E (EFSA-Q-2005-146, EFSA-Q-2005-172, EFSA-Q-2006-265)

The draft opinion was discussed, several modifications were suggested and questions were raised. When these are introduced the modified draft will be sent to the members for adoption by written procedure.

8.2. Calcium citrate malate (EFSA-Q-2006-201, EFSA-Q-2006-205)

The draft opinion was discussed and a few modifications were suggested. With these modifications the opinion was adopted.

The opinion deals only with the safety of calcium citrate malate as source of calcium and with the bioavailability of calcium from this source, intended to be used in foods for particular nutritional uses and in food supplements. The safety of calcium, in terms of amounts that may be consumed, is outside the remit of this Panel.

The Panel concluded that calcium is bioavailable from calcium citrate malate.

The Panel also concluded that the exposure resulting from the use of calcium citrate malate as source of calcium intended for use in Foods for Particular Nutritional Uses (PARNUTS), food supplements and foods intended for the general population is of no safety concern, at the maximum levels estimated in this opinion.

The Panel noted that there are different proposals for the specifications for fluoride from the different petitioners and recommended that the lowest figure is retained in the European specifications.

9. FLAVOURINGS

9.1. Flavouring Group Evaluations (FGE)

I. Rietjens declared that she is a member of the FEMA (Flavour and Extract Manufacturers Association) Expert Panel. Although this was not considered a direct conflict of interest for the particular flavouring groups under evaluation at this meeting, it was decided that she should not participate in the discussion on flavouring group evaluations except for the discussion on how to apply the (Q)SAR on FGE.19 where the discussion was not related to single substances.

9.1.1. **FGE.19 (EFSA-Q-2003-162)**

(Q)SAR predictions on alpha, beta-unsaturated substances including predicted metabolism products of flavouring precursors for alpha, beta-unsaturated aldehydes and ketones.
Status of the predictions and outcome of the validation of the genotoxicity studies.

J**.** Gry described the background for initiating the (Quantitative) Structure Activity Relationship ((Q)SAR) approach for the candidate substances in FGE.19.

The Panel discussed FGE.19, which contains 347 flavouring substances in the EU Register being alpha, beta-unsaturated aldehydes or ketones and precursors which could give rise to such carbonyl substances via hydrolysis and / or oxidation (See Annex).

The alpha, beta-unsaturated aldehyde and ketone structure is considered by the Panel to be a structural alert for genotoxicity. The Panel noted that there were limited genotoxicity data on these flavouring substances but that positive genotoxicity studies were identified for some substances in the group.

The alpha, beta-unsaturated carbonyls were subdivided into 28 subgroups on the basis of structural similarity (See Annex). In an attempt to decide which of the substances could go through the Procedure, a structure-activity relationship (Q)SAR prediction of the genotoxicity of these substances was undertaken considering a number of models (DEREKfW, TOPKAT, MULTICASE, ISS-MBQSAR).

The Panel noted that for most of these models internal and external validation has been performed, but considered that the outcome of these validations was not always extensive enough to appreciate the validity of the predictions of these models for these alpha, beta- unsaturated carbonyls. Therefore the Panel considered it inappropriate to totally rely on (Q)SAR predictions at this point in time and decided not to take substances through the procedure based on negative (Q)SAR predictions only.

The Panel took note of the (Q)SAR predictions and the fact that there are available data on genotoxicity, *in vitro* and *in vivo,* as well as data on carcinogenicity for several substances and decided that 11 subgroups (1.1.2, 1.1.3, 1.1.4, 2.4, 2.6, 2.7, 3.1, 3.3, 4.1, 4.2, 4.4 (See Annex) will be further examined to see whether evaluation through the Procedure is feasible. This process will require evaluation of a large number of data from genotoxicity and carcinogenicity tests and will also include considerations on modes of actions and metabolism.

For the remaining 17 subgroups (See Annex) the Panel decided that they could not be put through the Procedure on the basis of the available data. The Panel concluded that there is a need for additional information before conclusions on the substances in these subgroups can be reached. Such information could be data on mode of action and metabolism, genotoxicity data, especially *in vivo*, or data on carcinogenicity.

The evaluation of the data already available and the data now requested will be a time-consuming task. Thus, it is foreseen that the evaluation of the flavouring substances in FGE.19 will not be finalised by the deadline of April, 2008.

9.1.2. **FGE.25 (EFSA-Q-2003-168)**

Aliphatic and aromatic hydrocarbons from chemical group 31.

At the 25th Plenary in September the Draft Opinion was referred back to the Flavouring Working Group.

The updated draft opinion was presented by J. Gry. The Panel agreed that 2-methyl-1,3-butadiene (isoprene) [FL-no: 01.049] could not go through the Procedure, due to genotoxic potential *in vivo* and carcinogenic effects in experimental animals.
Minor revisions were proposed. The opinion was adopted. The full opinion will be published on: http://www.efsa.europa.eu/EFSA/ScientificPanels/AFC/efsa_locale-1178620753812_Opinions425.htm

9.1.3. **FGE.15 Revision 1 (EFSA-Q-2003-158 revised)**

Aryl-substituted saturated and unsaturated primary alcohol/aldehyde/acid/ester derivatives from chemical group 22.

Minor revisions were proposed. The Opinion was adopted subject to these revisions. The full opinion will be published on:
http://www.efsa.europa.eu/EFSA/ScientificPanels/AFC/efsa_locale-1178620753812_Opinions425.htm as an update of the previously adopted opinions on the respective FGEs.

9.1.4. **FGE.17 Revision 1 (EFSA-Q-2003-160 revised)**

Pyrazine derivatives from chemical group 24.

The draft opinion was referred back to the Flavouring Working Group for updating the text. On the Agenda for next Plenary, January 2008.

9.1.5. **FGE.20 Revision 1 (EFSA-Q-2003-163 revised)**

Benzyl alcohols, benzaldehydes, a related acetal, benzoic acids, and related esters from chemical group 23.

S. Grilli declared an interest concerning the substances benzyl alcohol and propylene glycol as he had advised an Italian distribution company regarding their use as solvents for food ingredients. Although it was found that this was an indirect interest compared with the use as flavour/metabolite of flavour he was not participating in the discussions on this FGE.

The opinion was adopted. The full opinion will be published on:
http://www.efsa.europa.eu/EFSA/ScientificPanels/AFC/efsa_locale-1178620753812_Opinions425.htm as an update of the previously adopted opinions on the respective FGEs.

9.1.6. **FGE.26 Revision 1 (EFSA-Q-2003-169 revised)**

Amino acids from chemical group 34.

Minor revisions were proposed. The opinion was adopted subject to these revisions. The full opinion will be published on:
http://www.efsa.europa.eu/EFSA/ScientificPanels/AFC/efsa_locale-1178620753812_Opinions425.htm as an update of the previously adopted opinions on the respective FGEs.:

9.1.7. **FGE.79**

Consideration of amino acids and related substances evaluated by JECFA (63rd meeting).

Minor revisions were proposed. The opinion was adopted subject to these revisions. The full opinion will be published on:
http://www.efsa.europa.eu/EFSA/ScientificPanels/AFC/efsa_locale-1178620753812_Opinions425.htm as an update of the previously adopted opinions on the respective FGEs.

10. FOOD CONTACT MATERIALS

10.1. **Guidelines on submission of a dossier for evaluation by the EFSA of a recycling process of plastics for food contact uses - Draft guidelines**

The draft document was discussed and suggested changes were noted. Subject to these changes the guidelines will be placed on the EFSA website for public consultation after the adoption of the relevant Regulation by the Commission. The guidelines will be finally adopted after consideration of the comments from the consultation.

10.2. **Evaluation of substances for the 17th list of monomers and additives**

S. Grilli declared an interest concerning the substance triethanolamine, REF. No. 94000 as he had advised an Italian distribution company regarding its use in cosmetics. It was not considered as a conflict of interest and he was invited to participate in the discussions.

The draft opinions on the following substances were discussed, modified and adopted:

Ref. No.:	14627
Name of the substance:	3-chlorophthalic anhydride
CAS number:	117-21-5
Classified in list:	3
Restriction:	0.05 mg/kg food, expressed as 3-chlorophthalic acid

Ref. No.:	14628
Name of the substance:	4-chlorophthalic anhydride
CAS number:	118-45-6
Classified in list:	3
Restriction:	0.05 mg/kg food, expressed as 4-chlorophthalic acid

Ref. No.:	21498
Name of the substance:	[3-(Methacryloxy)propyl] trimethoxysilane
CAS number:	2530-85-0
Classified in list:	3
Restriction:	0.05 mg/kg of food To be used only as a surface treatment agent of inorganic fillers

Ref. No.:	60027
Name of the substance:	Hydrogenated homopolymers and/or copolymers made of 1-hexene and/or 1-octene and/or 1-decene and/or 1-dodecene and/or 1-tetradecene (MW: 440-12000)
CAS number:	-
Classified in list:	3
Restriction:	None

Ref. No.:	80480
Name of the substance:	Poly(6-morpholino-1,3,5-triazine-2,4-diyl)-(2,2,6,6-tetramethyl-4-piperidyl)imino) hexa-methylene-(2,2,6,6-tetramethyl-4-piperidyl)imino)
CAS number:	90751-07-8
Classified in list:	3
Restriction:	5 mg/kg food

Ref. No.:	81280
Name of the substance:	Polyvinyl alcohol
CAS number:	9002-89-5
Classified in list:	3
Restriction:	None

Ref. No.:	92470
Name of the substance:	N,N’,N’’,N’’-tetrakis(4,6-bis(N-butyl-(N methyl-2,2,6,6-tetramethylpiperidin-4-yl)amino)triazin-2-yl)-4,7-diazadecane-1,10-diamine
CAS number:	106990-43-6
Classified in list:	3
Restriction:	0.05 mg/kg food

Ref. No.:	92475
Name of the substance:	3,3’,5,5’-tetrakis(tert-butyl)-2,2’-dihydroxybiphenyl, cyclic ester with [3-(3-tert-butyl-4-hydroxy-5-methylphenyl)propyl]oxyphosphonous acid
CAS number:	203255-81-6
Classified in list:	3
Restriction:	0.05 mg/kg food (expressed as the sum of phosphite and phosphate form of the substance)

Ref. No.:	94000
Name of the substance:	Triethanolamine
CAS number:	102-71-6
Classified in list:	3

Restriction: 0.05 mg/kg food (including the hydrochloride adduct)

The full opinions as adopted can be seen on the EFSA website at:
http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178675761369.htm

11. OTHER AREAS WITHIN THE REMIT OF THE AFC PANEL

11.1. Aluminium

S. Barlow, J.C. Larsen, J.-C. Leblanc and C. Leclercq declared that they had been present in the JECFA meeting when this substance was discussed and C. Leclercq declared she had been a drafting expert for the monograph. It was found that this was not of conflict and they were invited to participate in the discussions.

R. Gürtler declared that he in the past had prepared a statement on aluminium for his institute, but that he had not been involved in the recent statement from BfR on aluminium. It was found that this was not of conflict and he was invited to participate in the discussions.

Sandro Grilli declared an interest for this substance as he had advised an Italian distribution company regarding its use of aluminium compounds in cosmetics. It was not considered as a conflict of interest and he was invited to participate in the discussions

The draft opinion was discussed and several modifications were suggested. The opinion will be restructured and will come back to the next Plenary meeting in January for adoption. The draft has also been sent for information to the CONTAM Panel and comments from this Panel are expected..

11.2. Draft Guidance document on submissions for the evaluation of food enzymes

The draft guidance document was extensively discussed and several changes were suggested. After renewed discussion in the working group it will come back to a later Plenary meeting for further comments. When these steps are completed, the guidance will be placed on the EFSA website for public consultation. The guidance will be adopted after consideration of the comments from the consultation.

12. ANY OTHER BUSINESS

12.1 next meeting:

The Panel decided to include an extra plenary meeting on 6-7 March to be held in Brussels. The meeting of the additives Working Group, scheduled for 4-6 March in Parma, will be held in Brussels on 4-5 March.

13. ANNEX: (FGE.19) 213 ALPHA,BETA-UNSATURATED ALDEHYDES AND KETONES

EXPLANATION TO TABLE COLUMNS:

Column 1: FL-no = FLAVIS number for each Register substance and JECFA number for those substances evaluated by JECFA

Column 2: Structure group: The substances have been divided into five main groups, which are subdivided into 28 subgroups of structurally related flavouring substances:

1. Straight- and branched-chain aliphatic acyclic α,β-unsaturated aldehydes and ketones

1.1 Aliphatic aldehydes

1.1.1 With or without additional non-conjugated double-bonds

1.1.2 2-alkylated substances with or without additional double-bonds

1.1.3 3-alkylated substances with or without additional double-bonds

1.1.4 Two or more conjugated double-bonds with or without additional non-conjugated double-bonds

1.1.5 With carboxylic groups

1.2 Aliphatic ketones

1.2.1 Mono-unsaturated

1.2.2 With terminal double-bond

1.2.3 With additional double-bonds

1.2.4 With carboxylic group

2. Alicyclic α,β-unsaturated aldehydes, ketones and related substances with the alpha,beta-conjugation in the ring or in the side chain

2.1 Alicyclic aldehydes (α,β-unsaturation in sidechain)

2.2 Alicyclic aldehydes (α,β-unsaturation in ring / sidechain)

2.3 Alicyclic aldehydes – more complex

2.4 Alicyclic ketones (α,β-unsaturation in sidechain)

2.5 Alicyclic ketones – (α,β-unsaturation in ring / sidechain)

2.6 Alicyclic ketones (α,β-unsaturation in ring)

2.7 Alicyclic ketones – more complex

3. Cinnamyl derivatives and other aromatic alkyl substituted aldehydes, ketones and related substances with or without the conjugation of the α,β-unsaturation in the ring system

3.1 Cinnamyl aldehydes

3.2 Cinnamyl ketones

3.3 2-Phenyl-2-alkenales

4. Heterocyclic α,β-unsaturated aldehydes, ketones and related substances with the α,β-conjugation in the ring or in the side chain

4.1 Lactones

4.2 Furfural derivatives

4.3 Benzofuranes

4.4 3(2H)-Furanones

4.5 Alkanoyl furanones

4.6 Furans with conjugation in side chain

5. Pyrroles, thiophenes and other sulphur-containing substances

5.1 Pyrroles

5.2 Thiophenes

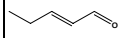
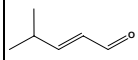
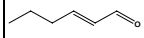
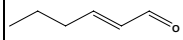
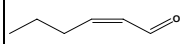
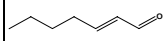
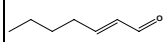
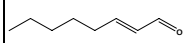
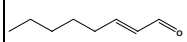
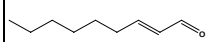
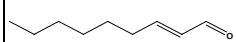
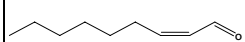
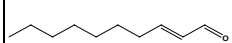
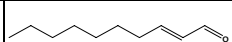
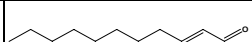
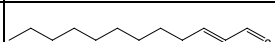
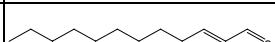
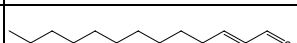
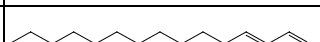
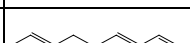
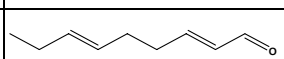
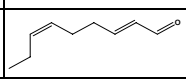
5.3 Other sulphurcontaining substances

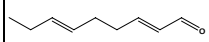
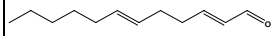
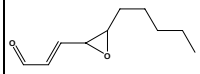
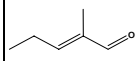
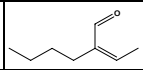
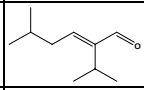
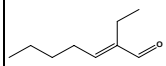
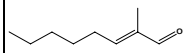
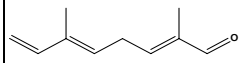
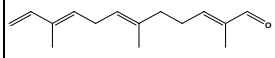
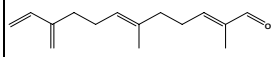
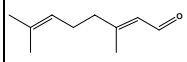
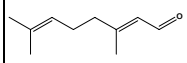
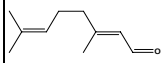
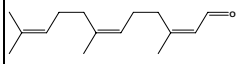
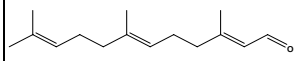
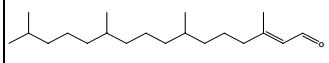
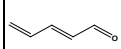
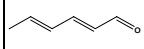
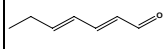
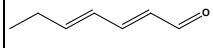
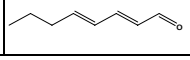
Column 3: EU Register Name as listed in Commission Decision 1999/217/EC last amended 18/5-2005.

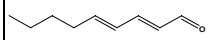
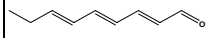
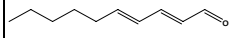
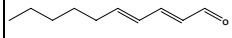
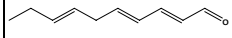
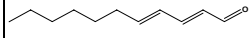
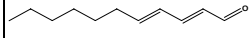
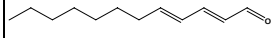
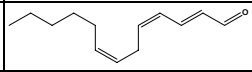
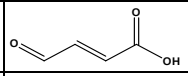
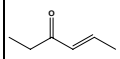
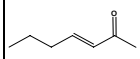
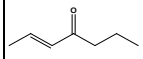
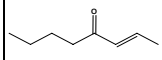
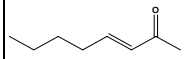
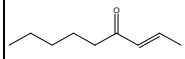
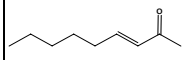
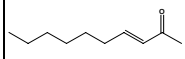
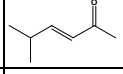
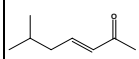
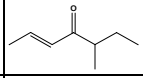
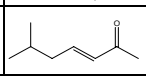
Column 4: Structural formula

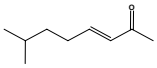
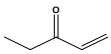
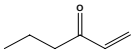
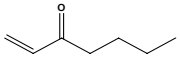
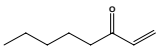
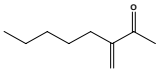
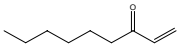
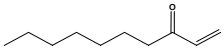
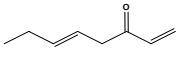
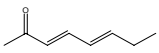
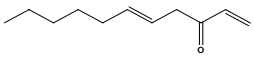
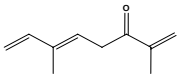
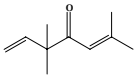
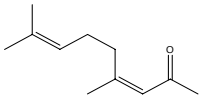
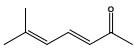
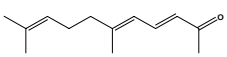
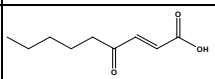
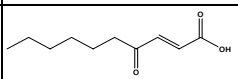
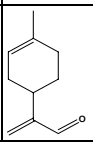
Column 5: FEMA (Flavour and Extract Manufactures Association); CoE (Council of Europe) and CASrn numbers if available

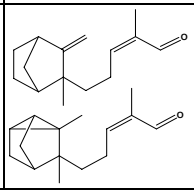
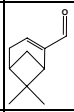
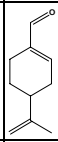
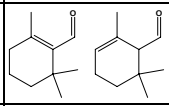
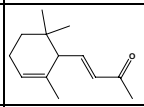
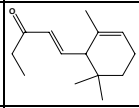
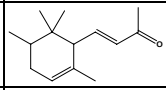
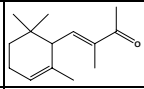
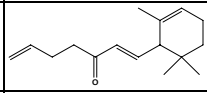
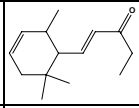
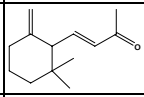
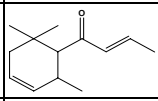
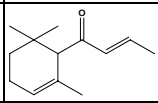
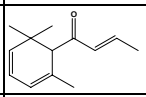
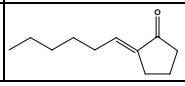
213 α,β-UNSATURATED ALDEHYDES AND KETONES CONSIDERED AT THE 26TH AFC PLENARY MEETING

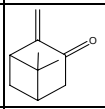
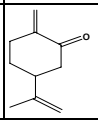
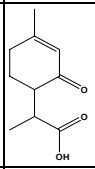
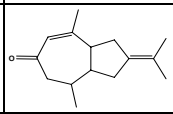
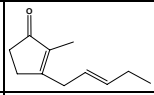
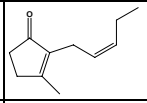
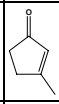
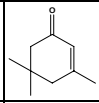
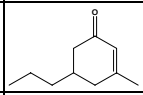
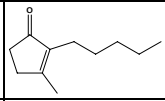
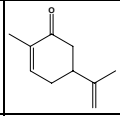
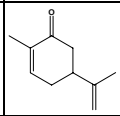
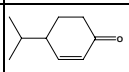
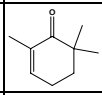
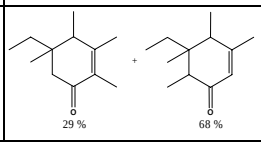
FL-no JECFA-no	Sub- group	EU Register name	Structural formula	FEMA no CoE no CAS no
05.176	1.1.1	Prop-2-enal		- - 107-02-8
05.102 1364	1.1.1	Pent-2-enal		3218 10375 764-39-6
05.114 1208	1.1.1	4-Methylpent-2-enal		3510 10364 5362-56-1
05.189 1353?	1.1.1	2-Hexenal		- 748 505-57-7
05.073	1.1.1	Hex-2(trans)-enal		2560 748 6728-26-3
Not in Register	1.1.1	Hex-2(cis)-en-1-al		- - -
05.150 1360	1.1.1	Hept-2(trans)-enal		3165 730 18829-55-5
05.070	1.1.1	2-Heptenal		3165 730 2463-63-0
05.060 1363	1.1.1	Oct-2-enal		3215 663 2363-89-5
05.190	1.1.1	trans-2-Octenal		3215 - 2548-87-0
05.171 1362	1.1.1	Non-2-enal		3213 733 2463-53-8
05.072	1.1.1	trans-2-Nonenal		3213 733 18829-56-6
Not in Register	1.1.1	Non-2(cis)-en-1-al		- - 60784-31-8
05.076 1349	1.1.1	Dec-2-enal		2366 2009 3913-71-1
05.191	1.1.1	trans-2-Decenal		2366 - 3913-81-3
05.109 1366	1.1.1	2-Undecenal		3423 11827 2463-77-6
05.144	1.1.1	Dodec-2(trans)-enal		2402 - 20407-84-5
05.037 1350	1.1.1	2-Dodecenal		2402 124 4826-62-4
05.078 1359	1.1.1	Tridec-2-enal		3082 2011 7774-82-5
05.179	1.1.1	Tetradec-2-enal		- - 51534-36-2
05.111 1182	1.1.1	Octa-2(trans),6(trans)-dienal		3466 10371 56767-18-1
Not in Register	1.1.1	Nona-2,6-dien-1-al		- - 26370-28-5
05.058 1186	1.1.1	Nona-2(trans),6(cis)-dienal		3377 659 557-48-2

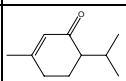
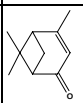
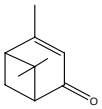
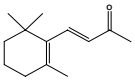
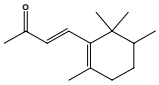
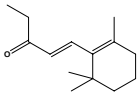
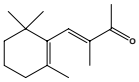
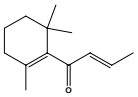
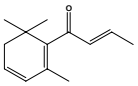
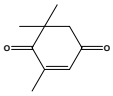
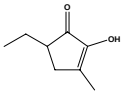
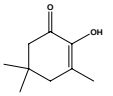
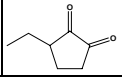
FL-no JECFA-no	Sub- group	EU Register name	Structural formula	FEMA no CoE no CAS no
05.172 1187	1.1.1	Nona-2(trans),6(trans)-dienal		3766 - 17587-33-6
05.120 1197	1.1.1	Dodeca-2,6-dienal		3637 - 21662-13-5
16.071 1570	1.1.1	4,5-Epoxydec-2(trans)-enal		- - 188590-62-7
05.095 1201	1.1.2	2-Methylcrotonaldehyde		3407 2281 497-03-0
05.090 1209	1.1.2	2-Methylpent-2-enal		3194 2129 623-36-9
05.105 1214	1.1.2	2-Butylbut-2-enal		3392 10324 25409-08-9
05.107 1215	1.1.2	2-Isopropyl-5-methylhex-2-enal		3406 10361 35158-25-9
05.033 1216	1.1.2	2-Ethylhept-2-enal		2438 120 10031-88-6
05.126 1217	1.1.2	2-Methyloct-2-enal		3711 10363 49576-57-0
Non-reg	1.1.2	2,6-dimethyl-2,5,7-octatrienal		- - ?
05.130	1.1.2	alpha-Sinensal		3141 10380 17909-77-2
05.178 1227	1.1.2	beta-Sinensal		3141 10381 60066-88-8
05.124 1202	1.1.3	3-Methylcrotonaldehyde		3646 10354 107-86-8
05.020 1225	1.1.3	Citral		2303 109 5392-40-5
05.170	1.1.3	Neral		2303 - 106-26-3
05.188	1.1.3	trans-3,7-Dimethylocta-2,6-dienal		2303 - 141-27-5
05.148 1228	1.1.3	Farnesal		4019 - 19317-11-4
Not in Register	1.1.3	3,7,11-Trimethyldodeca-2,6,10-trien-1-al		- - 502-67-0
Not in Register	1.1.3	Phytal or 3,7,11,15-tetramethyl-2-hexadecen-1-al		- - -
05.101 1173	1.1.4	Penta-2,4-dienal		3217 11695 764-40-9
05.057 1175	1.1.4	Hexa-2(trans),4(trans)-dienal		3429 640 142-83-6
05.084 1179	1.1.4	Hepta-2,4-dienal		3164 729 4313-03-5
Not in Register	1.1.4	Hepta-2,4-dien-1-al		- - 5910-85-0
05.127 1181	1.1.4	Octa-2(trans),4(trans)-dienal		3721 11805 30361-28-5

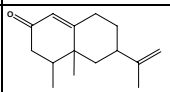
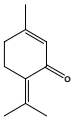
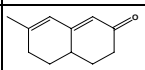
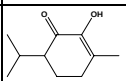
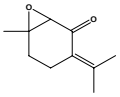
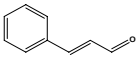
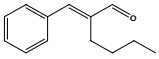
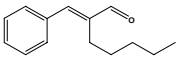
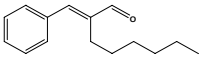
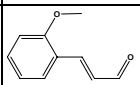
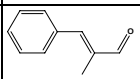
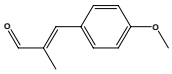
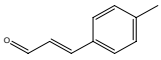
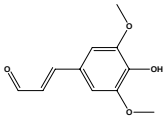
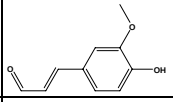
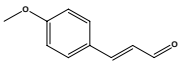
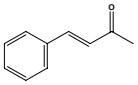
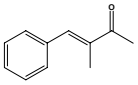
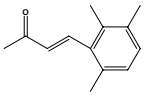
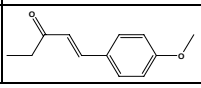
FL-no JECFA-no	Sub- group	EU Register name	Structural formula	FEMA no CoE no CAS no
05.071 1185	1.1.4	Nona-2,4-dienal		3212 732 6750-03-4
05.173	1.1.4	Nona-2,4,6-trienal		- - 57018-53-8
05.081	1.1.4	2,4-Decadienal		3135 2120 2363-88-8
05.140 1190	1.1.4	Deca-2(trans),4(trans)-dienal		3135 2120 25152-84-5
05.141	1.1.4	Deca-2,4,7-trienal		- - 51325-37-2
05.108 1195	1.1.4	Undeca-2,4-dienal		3422 10385 13162-46-4
05.196	1.1.4	tr-2, tr-4-Undecadienal		3422 10385 30361-29-6
05.125 1196?	1.1.4	Dodeca-2,4-dienal		3670 11758 21662-16-8
05.064 1198	1.1.4	Trideca-2(trans),4(cis),7(cis)-trienal		3638 685 13552-96-0
Not in Register	1.1.5	4-oxo-2-butenoic acid Fumaraldehydic acid		- - 4437-06-3
07.044 1124	1.2.1	Pent-3-en-2-one		3417 666 625-33-2
07.048 1125	1.2.1	4-Hexen-3-one		3352 718 2497-21-4
07.105 1127	1.2.1	Hept-3-en-2-one		3400 11094 1119-44-4
07.104 1126	1.2.1	Hept-2-en-4-one		3399 11093 4643-25-8
07.082 1129	1.2.1	Oct-2-en-4-one		3603 2313 4643-27-0
07.107 1128	1.2.1	Oct-3-en-2-one		3416 11170 1669-44-9
07.187	1.2.1	Non-2-en-4-one 6)		- 11162 32064-72-5
07.188 1136	1.2.1	Non-3-en-2-one		3955 11163 14309-57-0
07.121 1130	1.2.1	Dec-3-en-2-one		3532 11751 10519-33-2
07.101 1131	1.2.1	4-Methylpent-3-en-2-one		3368 11853 141-79-7
07.106 1132	1.2.1	5-Methylhex-3-en-2-one		3409 11149 5166-53-0
07.258	1.2.1	6-Methyl-3-hepten-2-one		- - 2009-74-7
07.139 1133	1.2.1	5-Methylhept-2-en-4-one		3761 - 81925-81-7
07.244 1138	1.2.1	trans-6-Methyl-3-hepten-2-one		4001 20859-10-3

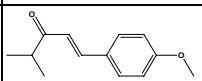
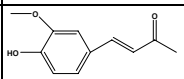
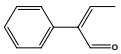
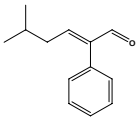
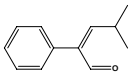
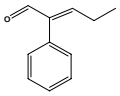
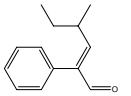
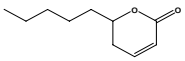
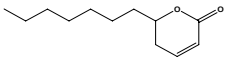
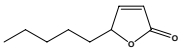
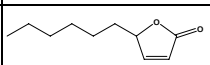
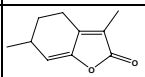
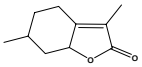
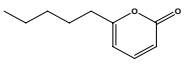
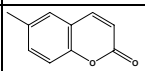
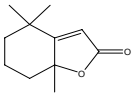
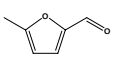
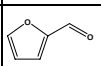
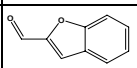
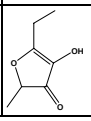
FL-no **JECFA-no**	**Sub- group**	**EU Register name**	**Structural formula**	**FEMA no** **CoE no** **CAS no**
07.177 1135	1.2.1	7-Methyl-3-octenone-2		3868 - 33046-81-0
07.145	1.2.2	But-3-en-2-one		- 11043 78-94-4
07.102 1147	1.2.2	Pent-1-en-3-one		3382 11179 1629-58-9
07.161	1.2.2	Hex-1-en-3-one		- - 1629-60-3
Not in Register	1.2.2	1-Hepten-3-one		- - 2918-13-0
07.081 1148	1.2.2	Oct-1-en-3-one		3515 2312 4312-99-6
07.138 1149	1.2.2	2-Pentylbut-1-en-3-one		3725 - 63759-55-7
07.210	1.2.2	1-Nonene-3-one		- - 24415-26-7
Not in Register	1.2.2	Dec-1-en-3-one		- - 56606-79-2
07.190	1.2.3	Octa-1,5-dien-3-one		- - 65213-86-7
07.247 1139	1.2.3	(E,E)-3,5-Octadien-2-one		4008 30086-02-3
Not in Register	1.2.3	Undeca-1,5-dien-3-one		- - -
Not in Register	1.2.3	2,6-Dimethylocta-1,5,7-trien-3-one		- - -
07.204	1.2.3	3,3,6-Trimethylhepta-1,5-dien-4-one		- - 546-49-6
07.256	1.2.3	(3Z)-4,8-Dimethyl-3,7-nonadiene-2-one		- - 817-88-9
07.099 1134	1.2.3	6-Methylhepta-3,5-dien-2-one		3363 11143 1604-28-0
07.198	1.2.3	Pseudo-ionone		- 11191 141-10-6
Not in Register	1.2.4	4-oxo-2-nonenoic acid		- - -
Not in Register	1.2.4	4-oxo-2-decenoic acid		- - -
Not in Register	2.1	p-Mentha-1,8(10)-dien-9-al		- - -

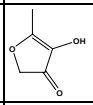
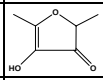
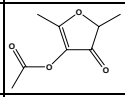
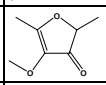
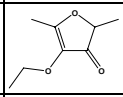
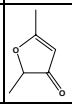
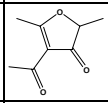
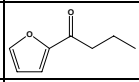
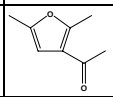
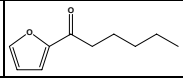
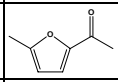
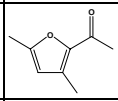
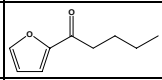
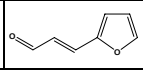
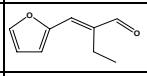
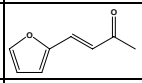
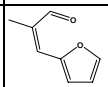
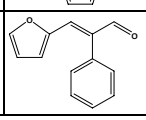
FL-no **JECFA-no**	**Sub- group**	**EU Register name**	**Structural formula**	**FEMA no** **CoE no** **CAS no**
Not in Register	2.1	Santalal?		- - -
05.106 980	2.2	Myrtenal		3395 10379 564-94-3
05.117 973	2.2	p-Mentha-1,8-dien-7-al		3557 11788 2111-75-3
05.121 979	2.2	2,6,6-Trimethyl-1-cyclohexen-1-carboxaldehyde		3639 2133 432-25-7
05.104 977	2.3	2,6,6-Trimethylcyclohexa-1,3-diene-1-carbaldehyde		3389 10383 116-26-7
07.007 388	2.4	alpha-Ionone		2594 141 127-41-3
07.009 398	2.4	Methyl-alpha-ionone		2711 143 7779-30-8
07.011 403	2.4	4-(2,5,6,6-Tetramethyl-2-cyclohexenyl)-3-buten-2-one		2597 145 79-69-6
07.036 404	2.4	alpha-Isomethyl ionone		2714 169 127-51-5
07.061 401	2.4	Allyl alpha-ionone		2033 2040 79-78-7
07.088 400	2.4	Methyl-delta-ionone		2713 11852 7784-98-7
07.091 390	2.4	gamma-Ionone		3175 - 79-76-5
07.130 386	2.4	delta-Damascone		3622 - 57378-68-4
07.134 385	2.4	alpha-Damascone		3659 11053 43052-87-5
07.231	2.4	alpha-Damascenone		35044-63-4
07.034 1106	2.5	2-Hexylidenecyclopentan-1-one		2573 167 17373-89-6

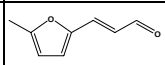
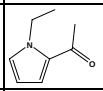
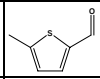
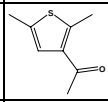
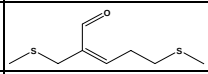
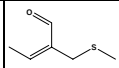
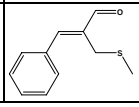
FL-no JECFA-no	Sub- group	EU Register name	Structural formula	FEMA no CoE no CAS no
Non-reg	2.5	2(10)-pinen-3-one		- - 30460-92-5
Non-reg	2.5	1(7),8-p-menthadien-2-one		- - ?
Not in Register	2.6	2-Cyclohexen-1-one, 3-methyl-6-(1-carboxyethyl)-		- - -
Not in Register	2.6	2,6-Dimethyl-9-(1-methylethylidene)-bicyclo[5.3.0]dec-2-en-4-one		- - -
07.033 1115	2.6	Isojasmone		3552 167 11050-62-7
07.094 1114	2.6	3-Methyl-2-(pent-2(cis)-enyl)cyclopent-2-en-1-one		3196 11786 488-10-8
07.098 1107	2.6	3-Methylcyclohex-2-en-1-one		3360 11134 1193-18-6
07.112 1105	2.6	3-Methyl-2-cyclopenten-1-one		3435 11137 2758-18-1
07.126 1112	2.6	3,5,5-Trimethylcyclohex-2-en-1-one		3553 11918 78-59-1
07.129 1113	2.6	3-Methyl-5-propylcyclohex-2-en-1-one		3577 3720-16-9
07.140 1406	2.6	3-Methyl-2-pentylcyclopent-2-en-1-one		3763 - 1128-08-1
07.146 380.1	2.6	d-Carvone		- - 2244-16-8
07.147 380.2	2.6	l-Carvone		- - 6485-40-1
07.172 1110	2.6	4-Isopropylcyclohex-2-en-1-one		3939 11127 500-02-7
07.202	2.6	2,6,6-Trimethylcyclohex-2-en-1-one		- - 20013-73-4
07.035 1111	2.6	Tetramethyl ethylcyclohexenone (mixture of isomers)		3061 168 17369-60-7

FL-no JECFA-no	Sub- group	EU Register name	Structural formula	FEMA no CoE no CAS no
07.255	2.6	l-Piperitone		- - 4573-50-6
07.196 -	2.6	Pin-2-en-4-one		11186 80-57-9
Non-reg -	2.6	(1S,5S)-Pin-2-en-4-one		- - 1196-01-6
07.008 389	2.7	beta-Ionone		2595 142 14901-07-6
07.200	2.7	4-(2,5,6,6-Tetramethyl-1-cyclohexenyl)but-3-en-2-one		- - 79-70-9
07.010 399	2.7	Methyl-beta- ionone		2712 144 127-43-5
07.041	2.7	beta-Isomethylionone		- 650 79-89-0
07.083 384	2.7	beta-Damascone		3243 2340 23726-92-3
07.108 387	2.7	beta-Damascenone		3420 11197 23696-85-7
07.109	2.7	2,6,6-Trimethylcyclohex-2-en-1,4-dione		3421 11200 1125-21-9
07.117 422	2.7	3-Ethyl-2-hydroxy-4-methylcyclopent-2-en-1-one		3453 11077 42348-12-9
07.118 423	2.7	5-Ethyl-2-hydroxy-3-methylcyclopent-2-en-1-one		3454 11078 53263-58-4
07.119 424	2.7	2-Hydroxycyclohex-2-en-1-one		3458 11046 10316-66-2
07.120 426	2.7	2-Hydroxy-3,5,5-trimethylcyclohex-2-en-1-one		3459 11198 4883-60-7
07.014 1480	2.7	Maltol		2656 148 118-71-8
07.047 1481	2.7	Ethyl maltol		3487 692 4940-11-8
07.056 418	2.7	3-Methylcyclopentan-1,2-dione		2700 758 80-71-7
07.057 419	2.7	3-Ethylcyclopentan-1,2-dione		3152 759 21835-01-8

FL-no **JECFA-no**	**Sub- group**	**EU Register name**	**Structural formula**	**FEMA no** **CoE no** **CAS no**
07.089 1398	2.7	Nootkatone		3166 11164 4674-50-4
07.127 757	2.7	p-Mentha-1,4(8)-dien-3-one		3560 11189 491-09-8
07.136 1405	2.7	4,4a,5,6-Tetrahydro-7-methylnapthalen-2(3H)-one		3715 34545-88-5
07.168 -	2.7	2-Hydroxypiperitone		4143 490-03-9
16.044 1574	2.7	Piperitenone oxide		4199 10508 35178-55-3
05.014 656	3.1	Cinnamaldehyde		2286 102 104-55-2
05.039 684	3.1	alpha-Butylcinnamaldehyde		2191 127 7492-44-6
05.040 685	3.1	alpha-Pentylcinnamaldehyde		2061 128 122-40-7
05.041 686	3.1	alpha-Hexylcinnamaldehyde		2569 129 101-86-0
05.048 688	3.1	2-Methoxycinnamaldehyde		3181 571 1504-74-1
05.050 683	3.1	alpha-Methylcinnamaldehyde		2697 578 101-39-3
05.051 689	3.1	3-(4-Methoxyphenyl)-2-methylprop-2-enal		3182 584 65405-67-6
05.122 682	3.1	p-Methylcinnamaldehyde		3640 10352 1504-75-2
05.154	3.1	4-Hydroxy-3,5-dimethoxycinnamaldehyde 6)		- 10341 4206-58-0
05.155	3.1	4-Hydroxy-3-methoxycinnamaldehyde 6)		- 10342 458-36-6
05.118 687	3.1	4-Methoxycinnamaldehyde		3567 11919 1963-36-6
07.024 820	3.2	4-Phenylbut-3-en-2-one		2881 158 122-57-6
07.027 821	3.2	3-Methyl-4-phenylbut-3-en-2-one		2734 161 1901-26-4
07.206	3.2	4-(2,3,6-Trimethylphenyl)but-3-en-2-one		- - 56681-06-2
07.030 826	3.2	1-(4-Methoxyphenyl)pent-1-en-3-one		2673 164 104-27-8

FL-no **JECFA-no**	**Sub- group**	**EU Register name**	**Structural formula**	**FEMA no** **CoE no** **CAS no**
07.049 829	3.2	1-(4-Methoxyphenyl)-4-methylpent-1-en-3-one		3760 719 103-13-9
07.046 732	3.2	Vanillylidene acetone		3738 691 1080-12-2
05.062 1474	3.3	2-Phenylcrotonaldehyde		3224 670 4411-89-6
05.099 1472	3.3	5-Methyl-2-phenylhex-2-enal		3199 10365 21834-92-4
05.100 1473	3.3	4-Methyl-2-phenylpent-2-enal		3200 10366 26643-91-4
05.175	3.3	2-Phenylpent-2-enal 6)		- - 3491-63-2
05.222	3.3	2-Phenyl-4-methyl-2-hexenal		- - 26643-92-5
10.037 246	4.1	Dec-2-eno-1,5-lactone		3744 - 54814-64-1
10.044 438	4.1	Dodec-2-eno-1,5-lactone		3802 - 16400-72-9
10.054	4.1	Non-2-eno-1,4-lactone		4188 - 21963-26-8
10.060	4.1	2-Decen-1,4-lactone		- - 2518-53-8
10.066	4.1	Furan-2(5H)-one		4138 -
10.034 1163	4.1	5,6-Dihydro-3,6-dimethylbenzofuran-2(4H)-one		3755 - 80417-97-6
10.036 1162	4.1	5,6,7,7a-Tetrahydro-3,6-dimethylbenzofuran-2(4H)-one		3764 - 13341-72-5
10.031 245	4.1	6-Pentyl-2H-pyran-2-one		3696 10967 27593-23-3
13.012 1172	4.1	6-Methylcoumarin		2699 579 92-48-8
10.169 1164	4.1	5,6,7,7alpha-Tetrahydro-4,4,7alpha-trimethyl-2-(4H)-benzofuranone		1020 15356-74-8
13.001 745	4.2	5-Methylfurfural		2702 119 620-02-0
13.018 450	4.2	Furfural		2489 2014 98-01-1
13.031 751	4.3	2-Benzofurancarboxaldehyde		3128 2247 4265-16-1
13.084 1449	4.4	2-Ethyl-4-hydroxy-5-methyl-3(2H)-furanone		3623 - 27538-09-6

FL-no JECFA-no	Sub- group	EU Register name	Structural formula	FEMA no CoE no CAS no
13.085 1450	4.4	4-Hydroxy-5-methylfuran-3(2H)-one		3635 11785 19322-27-1
13.010 1446	4.4	4-Hydroxy-2,5-dimethylfuran-3(2H)-one		3174 536 3658-77-3
13.099 1456	4.4	4-Acetoxy-2,5-dimethylfuran-3(2H)-one		3797 - 4166-20-5
13.089 1451	4.4	2,5-Dimethyl-4-methoxyfuran-3(2H)-one		3664 - 4077-47-8
13.117	4.4	2,5-Dimethyl-4-ethoxyfuran-3(2H)-one		- - 65330-49-6
13.119	4.4	2,5-Dimethylfuran-3(2H)-one		- 11066 14400-67-0
13.157	4.4	5-Methylfuran-3(2H)-one		- - 3511-32-8
13.175	4.4	4-Acetyl-2,5-dimethylfuran-3(2H)-one		- - -
13.1051507	4.5	2-Butyrylfuran		4083 11045 4208-57-5
13.054 1503	4.5	2-Acetylfuran		3163 11653 1192-62-7
13.066 1506	4.5	3-Acetyl-2,5-dimethylfuran		3391 10921 10599-70-9
13.070 1512	4.5	2-Hexanoylfuran		3418 11180 14360-50-0
13.083 1504	4.5	2-Acetyl-5-methylfuran		3609 11038 1193-79-9
13.101 1505	4.5	2-Acetyl-3,5-dimethylfuran		22940-86-9
13.163 1509	4.5	2-Pentanoylfuran		4192 3194-17-0
13.034 1497	4.6	3-(2-Furyl)acrylaldehyde		2494 2252 623-30-3
13.043 1501	4.6	Furfurylidene-2-butanal		2492 11885 770-27-4
13.044 1511	4.6	4-(2-Furyl)but-3-en-2-one		2495 11838 623-15-4
13.046 1498	4.6	3-(2-Furyl)-2-methylprop-2-enal		2704 11878 874-66-8
13.137 1502	4.6	3-(2-Furyl)-2-phenylprop-2-enal		3586 11928 65545-81-5

FL-no **JECFA-no**	**Sub- group**	**EU Register name**	**Structural formula**	**FEMA no** **CoE no** **CAS no**
13.150 1499	4.6	3-(5-Methyl-2-furyl)prop-2-enal		4175 5555-90-8
14.045 1305	5.1	2-Acetyl-1-ethylpyrrole		3147 11371 39741-41-8
14.046 1306	5.1	2-Acetyl-1-methylpyrrole		3184 11373 932-16-1
14.047 1307	5.1	2-Acetylpyrrole		3202 11721 1072-83-9
14.068 1319	5.1	2-Propionylpyrrole		3614 11942 1073-26-3
14.079 -	5.1	2-Acetyl-1,4,5,6-tetrahydropyridine		 27300-27-2
15.004 1050	5.2	5-Methyl-2-thiophenecarbaldehyde		3209 2203 13679-70-4
15.024 1051	5.2	3-Acetyl-2,5-dimethylthiophene		3527 11603 2530-10-1
12.065 471	5.3	2,8-Dithianon-4-en-4-carboxaldehyde		3483 11904 59902-01-1
12.079 470	5.3	2-(Methylthiomethyl)but-2-enal		3601 11549 40878-72-6
12.087 505	5.3	2-(Methylthiomethyl)-3-phenylpropenal		3717 65887-08-3

LIST OF 347 α,β-UNSATURATED ALDEHYDES, KETONES AND PRECURSORS FOR SUCH CARBONYL COMPOUNDS FROM THE EU REGISTER CONSIDERED AT THE 26TH AFC PLENARY MEETING

347 alpha,beta-unaturated aldehydes, ketones or precursors for such from the EU Register

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
1.1.1	02.020	1354	Hex-2-en-1-ol	Precursor
1.1.1	02.049	1184	Nona-2,6-dien-1-ol	Precursor
1.1.1	02.050		Pent-2-en-1-ol	Precursor
1.1.1	02.090	1365	Non-2(trans)-en-1-ol	Precursor
1.1.1	02.112	1369	Non-2(cis)-en-1-ol	Precursor
1.1.1	02.137		Dec-2-en-1-ol	Precursor
1.1.1	02.151		Hept-2-en-1-ol	Precursor
1.1.1	02.156	1374	Hex-2(cis)-en-1-ol	Precursor
1.1.1	02.210	1384	Undec-2-en-1-ol	Precursor
1.1.1	05.037	1350	2-Dodecenal	alpha,beta-supporting
1.1.1	05.058	1186	Nona-2(trans),6(cis)-dienal	alpha,beta-supporting-& metabolism product
1.1.1	05.060	1363	Oct-2-enal	alpha,beta-supporting-& metabolism product
1.1.1	05.070	SCF/CoE	2-Heptenal	alpha,beta-metabolism product of precursor
1.1.1	05.072	SCF/CoE	trans-2-Nonenal	alpha,beta-metabolism product of precursor
1.1.1	05.073	SCF/CoE	Hex-2(trans)-enal	alpha,beta-metabolism product of precursor
1.1.1	05.076	1349	Dec-2-enal	alpha,beta-supporting-& metabolism product
1.1.1	05.078	1359	Tridec-2-enal	alpha,beta-supporting
1.1.1	05.102	1364	Pent-2-enal	alpha,beta-supporting-& metabolism product
1.1.1	05.109	1366	2-Undecenal	alpha,beta-supporting-& metabolism product
1.1.1	05.111	1182	Octa-2(trans),6(trans)-dienal	alpha,beta-supporting
1.1.1	05.114	1208	4-Methylpent-2-enal	alpha,beta-supporting
1.1.1	05.120	1197	Dodeca-2,6-dienal	alpha,beta-supporting
1.1.1	05.144		Dodec-2(trans)-enal	alpha,beta-candidate
1.1.1	05.150	1360	Hept-2(trans)-enal	alpha,beta-supporting
1.1.1	05.171	1362	Non-2-enal	alpha,beta-supporting-& metabolism product
1.1.1	05.172	1187	Nona-2(trans),6(trans)-dienal	alpha,beta-supporting
1.1.1	05.179		Tetradec-2-enal	alpha,beta-candidate
1.1.1	05.189	1353?	2-Hexenal	alpha,beta-supporting-& metabolism product
1.1.1	05.191		trans-2-Decenal	alpha,beta-candidate
1.1.1	06.025	946	1,1-Diethoxynona-2,6-diene	Precursor
1.1.1	06.031	SCF/CoE	1,1-Diethoxyhex-2-ene	Precursor
1.1.1	06.072		1,1-Dimethoxyhex-2(trans)-ene	Precursor
1.1.1	09.054	2	Allyl butyrate	Precursor
1.1.1	09.097	4	allyl heptanoate	Precursor
1.1.1	09.109	6	Allyl nonanoate	Precursor
1.1.1	09.119	5	Allyl octanoate	Precursor
1.1.1	09.146	9	Allyl undec-10-enoate	Precursor
1.1.1	09.233	1	Allyl propionate	Precursor
1.1.1	09.244	3	Allyl hexanoate	Precursor
1.1.1	09.247		Allyl crotonate	Precursor
1.1.1	09.276	1367	Oct-2-enyl acetate	Precursor
1.1.1	09.277	1368	Oct-2(trans)-enyl butyrate	Precursor
1.1.1	09.303		Hept-2-enyl isovalerate	Precursor
1.1.1	09.312	8	Allyl hexa-2,4-dienoate	Precursor
1.1.1	09.385		Hept-2-enyl acetate	Precursor
1.1.1	09.394	1355	Hex-2(trans)-enyl acetate	Precursor
1.1.1	09.395	1378	Hex-2(trans)-enyl propionate	Precursor
1.1.1	09.396	1375	Hex-2-enyl butyrate	Precursor
1.1.1	09.397	1376	Hex-2-enyl formate	Precursor

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
1.1.1	09.398	1381	Hex-2-enyl hexanoate	Precursor
1.1.1	09.399	1377	Hex-2-enyl isovalerate	Precursor
1.1.1	09.400		Hex-2-enyl phenylacetate	Precursor
1.1.1	09.410	11	Allyl 2-ethylbutyrate	Precursor
1.1.1	09.411	14	Allyl cyclohexanebutyrate	Precursor
1.1.1	09.469	15	Allyl cyclohexanevalerate	Precursor
1.1.1	09.482	12	Allyl cyclohexaneacetate	Precursor
1.1.1	09.489	7	Allyl isovalerate	Precursor
1.1.1	09.492	16	Allyl cyclohexanehexanoate	Precursor
1.1.1	09.493	10	Allyl 2-methylcrotonate	Precursor
1.1.1	09.498	13	Allyl cyclohexanepropionate	Precursor
1.1.1	09.678		Pent-2-enyl hexanoate	Precursor
1.1.1	09.701	18	Allyl phenoxyacetate	Precursor
1.1.1	09.719	20	Allyl anthranilate	Precursor
1.1.1	09.741	19	Allyl cinnamate	Precursor
1.1.1	09.790	17	Allyl phenylacetate	Precursor
1.1.1	09.841		2-Hexenyl octanoate	Precursor
1.1.1	09.866		Allyl valerate	Precursor
1.1.1	13.004	21	Allyl 2-fuoate	Precursor
1.1.1	16.071	1570	4,5-Epoxydec-2(trans)-enal	alpha,beta-supporting
1.1.2	02.174		2-Methylbut-2-en-1-ol	Precursor
1.1.2	05.033	1216	2-Ethylhept-2-enal	alpha,beta-supporting
1.1.2	05.090	1209	2-Methylpent-2-enal	alpha,beta-supporting
1.1.2	05.095	1201	2-Methylcrotonaldehyde	alpha,beta-supporting-& metabolism product
1.1.2	05.105	1214	2-Butylbut-2-enal	alpha,beta-supporting
1.1.2	05.107	1215	2-Isopropyl-5-methylhex-2-enal	alpha,beta-supporting
1.1.2	05.126	1217	2-Methyloct-2-enal	alpha,beta-supporting
1.1.2	05.130		alpha-Sinensal	alpha,beta-candidate
1.1.2	05.178	1227	beta-Sinensal	alpha,beta-supporting
1.1.2	09.177	1207	2-Methylallyl butyrate	Precursor
1.1.2	09.931	1226	2,6-dimethyl-2,5,7-octatriene-1-ol acetate	Precursor
1.1.3	02.012	1223	Geraniol	Precursor
1.1.3	02.029	1230	3,7,11-Trimethyldodeca-2,6,10-trien-1-ol	Precursor
1.1.3	02.058	1224	Nerol	Precursor
1.1.3	02.109	1200	3-Methylbut-2-en-1-ol	Precursor
1.1.3	02.204		Phytol	Precursor
1.1.3	05.020	1225	Citral	alpha,beta-supporting-& metabolism product
1.1.3	05.124	1202	3-Methylcrotonaldehyde	alpha,beta-supporting-& metabolism product
1.1.3	05.148	1228	Farnesal	alpha,beta-supporting-& metabolism product
1.1.3	06.004	948	Citral diethyl acetal	Precursor
1.1.3	06.005	944	Citral dimethyl acetal	Precursor
1.1.3	09.011	58	Geranyl acetate	Precursor
1.1.3	09.048	66	Geranyl butyrate	Precursor
1.1.3	09.067	70	Geranyl hexanoate	Precursor
1.1.3	09.076	54	Geranyl formate	Precursor
1.1.3	09.128	62	Geranyl propionate	Precursor
1.1.3	09.150		Geranyl valerate	Precursor
1.1.3	09.167	67	Neryl butyrate	Precursor
1.1.3	09.169	63	Neryl propionate	Precursor
1.1.3	09.212	55	Neryl formate	Precursor
1.1.3	09.213	59	Neryl acetate	Precursor
1.1.3	09.382		Geranyl 2-methylbutyrate	Precursor
1.1.3	09.383		Geranyl 2-methylcrotonate	Precursor

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
1.1.3	09.405	599	Geranyl acetoacetate	Precursor
1.1.3	09.424	73	Neryl isobutyrate	Precursor
1.1.3	09.431	72	Geranyl isobutyrate	Precursor
1.1.3	09.453	75	Geranyl isovalerate	Precursor
1.1.3	09.471	76	Neryl isovalerate	Precursor
1.1.3	09.515	78	Geranyl 2-ethylbutyrate	Precursor
1.1.3	09.691		Phytyl acetate	Precursor
1.1.3	09.692		Prenyl acetate	Precursor
1.1.3	09.693		Prenyl benzoate	Precursor
1.1.3	09.694		Prenyl formate	Precursor
1.1.3	09.695		Prenyl isobutyrate	Precursor
1.1.3	09.696		Prenyl salicylate	Precursor
1.1.3	09.704	1020	Geranyl phenylacetate	Precursor
1.1.3	09.767	860	Geranyl benzoate	Precursor
1.1.3	09.818		3,7,11-Trimethyldodeca-2,6,10-trienyl acetate	Precursor
1.1.4	02.139	1189	Deca-2,4-dien-1-ol	Precursor
1.1.4	02.153		Hepta-2,4-dien-1-ol	Precursor
1.1.4	02.162	1174	Hexa-2,4-dien-1-ol	Precursor
1.1.4	02.188	1183	Nona-2,4-dien-1-ol	Precursor
1.1.4	05.057	1175	Hexa-2(trans),4(trans)-dienal	alpha,beta-supporting-& metabolism product
1.1.4	05.064	1198	Trideca-2(trans),4(cis),7(cis)-trienal	alpha,beta-supporting
1.1.4	05.071	1185	Nona-2,4-dienal	alpha,beta-supporting-& metabolism product
1.1.4	05.084	1179	Hepta-2,4-dienal	alpha,beta-supporting
1.1.4	05.101	1173	Penta-2,4-dienal	alpha,beta-supporting
1.1.4	05.108	1195	Undeca-2,4-dienal	alpha,beta-supporting
1.1.4	05.125	1196	Dodeca-2,4-dienal	alpha,beta-supporting
1.1.4	05.127	1181	Octa-2(trans),4(trans)-dienal	alpha,beta-supporting
1.1.4	05.140	1190	Deca-2(trans),4(trans)-dienal	alpha,beta-supporting
1.1.4	05.141		Deca-2,4,7-trienal	alpha,beta-candidate
1.1.4	05.173		Nona-2,4,6-trienal	alpha,beta-candidate
1.1.4	05.196		tr-2, tr-4-Undecadienal	alpha,beta-candidate
1.2.1	02.102	1140	Oct-3-en-2-ol	Precursor
1.2.1	02.193	1141	Oct-2-en-4-ol	Precursor
1.2.1	07.044	1124	Pent-3-en-2-one	alpha,beta-supporting
1.2.1	07.048	1125	4-Hexen-3-one	alpha,beta-supporting
1.2.1	07.082	1129	Oct-2-en-4-one	alpha,beta-supporting-& metabolism product
1.2.1	07.101	1131	4-Methylpent-3-en-2-one	alpha,beta-supporting
1.2.1	07.104	1126	Hept-2-en-4-one	alpha,beta-supporting
1.2.1	07.105	1127	Hept-3-en-2-one	alpha,beta-supporting
1.2.1	07.106	1132	5-Methylhex-3-en-2-one	alpha,beta-supporting
1.2.1	07.107	1128	Oct-3-en-2-one	alpha,beta-supporting-& metabolism product
1.2.1	07.121	1130	Dec-3-en-2-one	alpha,beta-supporting
1.2.1	07.139	1133	5-Methylhept-2-en-4-one	alpha,beta-supporting
1.2.1	07.177	1135	7-Methyl-3-octenone-2	alpha,beta-supporting
1.2.1	07.187		Non-2-en-4-one	alpha,beta-candidate
1.2.1	07.188	1136	Non-3-en-2-one	alpha,beta-supporting
1.2.1	07.244	1138	t-6-methyl-3-hepten-2-one	alpha,beta-supporting
1.2.1	07.258		6-Methyl-3-hepten-2-one	alpha,beta-candidate
1.2.2	02.023	1152	Oct-1-en-3-ol	Precursor
1.2.2	02.099	1150	Pent-1-en-3-ol	Precursor
1.2.2	02.104	1151	Hex-1-en-3-ol	Precursor
1.2.2	02.131		But-3-en-2-ol	Precursor
1.2.2	02.136	1153	Dec-1-en-3-ol	Precursor

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
1.2.2	02.155		1-Hepten-3-ol	Precursor
1.2.2	02.187		Non-1-en-3-ol	Precursor
1.2.2	07.081	1148	Oct-1-en-3-one	alpha,beta-supporting-& metabolism product
1.2.2	07.102	1147	Pent-1-en-3-one	alpha,beta-supporting-& metabolism product
1.2.2	07.138	1149	2-Pentylbut-1-en-3-one	alpha,beta-supporting
1.2.2	07.161		Hex-1-en-3-one	alpha,beta-candidate- & metabolism product
1.2.2	07.210		1-Nonene-3-one	alpha,beta-candidate- & metabolism product
1.2.3	02.145		2,6-Dimethylocta-1,5,7-trien-3-ol	Precursor
1.2.3	02.194		Octa-1,5-dien-3-ol	Precursor
1.2.3	02.211		Undeca-1,5-dien-3-ol	Precursor
1.2.3	02.252		4,8-Dimethyl-3,7-nonadien-2-ol	Precursor
1.2.3	07.099	1134	6-Methylhepta-3,5-dien-2-one	alpha,beta-supporting
1.2.3	07.190		Octa-1,5-dien-3-one	alpha,beta-candidate- & metabolism product
1.2.3	07.198		Pseudo-ionone	alpha,beta-candidate
1.2.3	07.204		3,3,6-Trimethylhepta-1,5-dien-4-one	alpha,beta-candidate
1.2.3	07.247	1139	E,E-3,5-octadien-2-one	alpha,beta-supporting
1.2.3	07.256		(3Z)-4,8-Dimethyl-3,7-nonadiene-2-one	alpha,beta-candidate- & metabolism product
1.2.3	09.936		4,8-Dimethyl-3,7-nonadien-2-yl acetate	Precursor
2.1	02.122		p-Mentha-1,8(10)-dien-9-ol	Precursor
2.1	09.034	985	Santalyl acetate	Precursor
2.1	09.712	1022	Santalyl phenylacetate	Precursor
2.1	09.809		p-Mentha-1,8(10)-dien-9-yl acetate	Precursor
2.2	02.060	974	p-Mentha-1,8-dien-7-ol	Precursor
2.2	02.091	981	Myrtenol	Precursor
2.2	05.106	980	Myrtenal	alpha,beta-supporting-& metabolism product
2.2	05.117	973	p-Mentha-1,8-dien-7-al	alpha,beta-supporting-& metabolism product
2.2	05.121	979	2,6,6-Trimethyl-1-cyclohexen-1-carboxaldehyde	alpha,beta-supporting
2.2	09.272	983	Myrtenyl formate	Precursor
2.2	09.278	975	p-Mentha-1,8-dien-7-yl acetate	Precursor
2.2	09.302	982	Myrtenyl acetate	Precursor
2.2	09.899		Myrtenyl-2-methylbutyrate	Precursor
2.2	09.900		Myrtenyl-3-methylbutyrate	Precursor
2.3	05.104	977	2,6,6-Trimethylcyclohexa-1,3-diene-1-carbaldehyde	alpha,beta-supporting
2.4	02.105	391	4-(2,6,6-Trimethyl-2-cyclohexenyl)but-3-en-2-ol	Precursor
2.4	07.007	388	alpha-Ionone	alpha,beta-supporting-& metabolism product
2.4	07.009	398	Methyl-alpha-ionone	alpha,beta-supporting
2.4	07.011	403	4-(2,5,6,6-Tetramethyl-2-cyclohexenyl)-3-buten-2-one	alpha,beta-supporting
2.4	07.036	404	alpha-Isomethyl ionone	alpha,beta-supporting
2.4	07.061	401	Allyl alpha-ionone	alpha,beta-supporting
2.4	07.088	400	Methyl-delta-ionone	alpha,beta-supporting
2.4	07.091	390	gamma-Ionone	alpha,beta-supporting
2.4	07.130	386	delta-Damascone	alpha,beta-supporting
2.4	07.134	385	alpha-Damascone	alpha,beta-supporting
2.4	07.170	1571	beta-ionone epoxide	alpha,beta-supporting
2.4	07.226		tr-1-(2,6,6-Trimethyl-2-cyclohexen-1-yl)but-2-en-1-one	alpha,beta-candidate
2.4	07.231		alpha-Damascenone	alpha,beta-supporting
2.5	02.100	1403	Pinocarveol	Precursor
2.5	07.034	1106	2-Hexylidenecyclopentan-1-one	alpha,beta-supporting
2.5	09.930	1098	1(7),8-p-Menthadien-2-yl acetate (mixture of (E) and (Z) isomers)	Precursor
2.6	02.062	381	Carveol	Precursor
2.6	02.083	434	p-menth-1-en-3-ol	Precursor
2.6	02.101	1404	Pin-2-en-4-ol	Precursor

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
2.6	02.214		Vetiverol	Precursor
2.6	07.033	1115	Isojasmone	alpha,beta-supporting
2.6	07.035	1111	tetramethyl ethylcyclohexenone	alpha,beta-supporting
2.6	07.094	1114	3-Methyl-2-(pent-2(cis)-enyl)cyclopent-2-en-1-one	alpha,beta-supporting
2.6	07.098	1107	3-Methylcyclohex-2-en-1-one	alpha,beta-supporting
2.6	07.112	1105	3-Methyl-2-cyclopenten-1-one	alpha,beta-supporting
2.6	07.126	1112	3,5,5-Trimethylcyclohex-2-en-1-one	alpha,beta-supporting
2.6	07.129	1113	3-Methyl-5-propylcyclohex-2-en-1-one	alpha,beta-supporting
2.6	07.140	1406	3-Methyl-2-pentylcyclopent-2-en-1-one	alpha,beta-supporting
2.6	07.146	380,1	d-Carvone	alpha,beta-supporting-& metabolism product
2.6	07.147	380,2	l-Carvone	alpha,beta-supporting
2.6	07.172	1110	4-Isopropylcyclohex-2-en-1-one	alpha,beta-supporting
2.6	07.175	435	p-menth-1-en-3-one	alpha,beta-supporting
2.6	07.196		Pin-2-en-4-one	alpha,beta-candidate
2.6	07.202		2,6,6-Trimethylcyclohex-2-en-1-one	alpha,beta-candidate
2.6	07.255		l-Piperitone	alpha,beta-candidate
2.6	09.143	383	carvyl propionate	Precursor
2.6	09.215	382	Carvyl acetate	Precursor
2.6	09.821		Vetiveryl acetate	Precursor
2.6	09.870		Carvyl-3-methylbutyrate	Precursor
2.7	02.106	392	4-(2,2,6-Trimethyl-1-cyclohexenyl)but-3-en-2-ol	Precursor
2.7	07.008	389	beta-Ionone	alpha,beta-supporting-& metabolism product
2.7	07.010	399	Methyl-beta- ionone	alpha,beta-supporting
2.7	07.014	1480	maltol	alpha,beta-supporting
2.7	07.041		beta-Isomethylionone	alpha,beta-candidate
2.7	07.047	1481	ethyl maltol	alpha,beta-supporting
2.7	07.056	418	3-methylcyclopentan-1,2-dione	alpha,beta-supporting
2.7	07.057	419	3-ethylcyclopentan-1,2-dione	alpha,beta-supporting
2.7	07.075	420	3,4-Dimethylcyclopentan-1,2-dione	alpha,beta-supporting
2.7	07.076	421	3,5-Dimethylcyclopentan-1,2-dione	alpha,beta-supporting
2.7	07.080	425	3-Methylcyclohexan-1,2-dione	alpha,beta-supporting
2.7	07.083	384	beta-Damascone	alpha,beta-supporting
2.7	07.089	1398	Nootkatone	alpha,beta-supporting
2.7	07.108	387	beta-Damascenone	alpha,beta-supporting
2.7	07.109		2,6,6-Trimethylcyclohex-2-en-1,4-dione	alpha,beta-candidate
2.7	07.117	422	3-Ethyl-2-hydroxy-4-methylcyclopent-2-en-1-one	alpha,beta-supporting
2.7	07.118	423	5-Ethyl-2-hydroxy-3-methylcyclopent-2-en-1-one	alpha,beta-supporting
2.7	07.119	424	2-Hydroxycyclohex-2-en-1-one	alpha,beta-supporting
2.7	07.120	426	2-Hydroxy-3,5,5-trimethylcyclohex-2-en-1-one	alpha,beta-supporting
2.7	07.127	757	p-Mentha-1,4(8)-dien-3-one	alpha,beta-supporting
2.7	07.136	1405	4,4a,5,6-Tetrahydro-7-methylnapthalen-2(3H)-one	alpha,beta-supporting
2.7	07.168		2-hydroxypiperitone	alpha,beta-candidate
2.7	07.200		4-(2,5,6,6-Tetramethyl-1-cyclohexenyl)but-3-en-2-one	alpha,beta-candidate
2.7	09.305	1409	beta-ionyl acetate	Precursor
2.7	09.525	1482	maltyl isobutyrate	Precursor
2.7	16.044	1574	Piperitenone oxide	alpha,beta-supporting
3.1	02.017	647	Cinnamyl alcohol	Precursor
3.1	02.030	674	alpha-Pentylcinnamyl alcohol	Precursor
3.1	05.014	656	Cinnamaldehyde	alpha,beta-supporting-& metabolism product
3.1	05.039	684	alpha-Butylcinnamaldehyde	alpha,beta-supporting
3.1	05.040	685	alpha-Pentylcinnamaldehyde	alpha,beta-supporting-& metabolism product
3.1	05.041	686	alpha-Hexylcinnamaldehyde	alpha,beta-supporting
3.1	05.048	688	2-Methoxycinnamaldehyde	alpha,beta-supporting

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
3.1	05.050	683	alpha-Methylcinnamaldehyde	alpha,beta-supporting
3.1	05.051	689	3-(4-Methoxyphenyl)-2-methylprop-2-enal	alpha,beta-supporting
3.1	05.118	687	4-Methoxycinnamaldehyde	alpha,beta-supporting
3.1	05.122	682	p-Methylcinnamaldehyde	alpha,beta-supporting
3.1	05.154		4-Hydroxy-3,5-dimethoxycinnamaldehyde	alpha,beta-candidate
3.1	05.155		4-Hydroxy-3-methoxycinnamaldehyde	alpha,beta-candidate
3.1	06.013	681	alpha-Pentylcinnamaldehyde dimethyl acetal	Precursor
3.1	06.014	648	Cinnamaldehyde ethylene glycol acetal	Precursor
3.1	09.018	650	Cinnamyl acetate	Precursor
3.1	09.026	677	alpha-Pentylcinnamyl acetate	Precursor
3.1	09.053	652	Cinnamyl butyrate	Precursor
3.1	09.085	649	Cinnamyl formate	Precursor
3.1	09.090	676	alpha-Pentylcinnamyl formate	Precursor
3.1	09.133	651	Cinnamyl propionate	Precursor
3.1	09.306		2-methoxycinnamyl acetate	Precursor
3.1	09.339		Cinnamyl 2-methylcrotonate	Precursor
3.1	09.459	654	Cinnamyl isovalerate	Precursor
3.1	09.468	678	alpha-Pentylcinnamyl isovalerate	Precursor
3.1	09.470	653	Cinnamyl isobutyrate	Precursor
3.1	09.708	655	Cinnamyl phenylacetate	Precursor
3.1	09.739	673	Cinnamyl cinnamate	Precursor
3.1	09.780	760	cinnamyl benzoate	Precursor
3.2	02.066	819	4-Phenylbut-3-en-2-ol	Precursor
3.2	07.024	820	4-Phenylbut-3-en-2-one	alpha,beta-supporting-& metabolism product
3.2	07.027	821	3-Methyl-4-phenylbut-3-en-2-one	alpha,beta-supporting
3.2	07.030	826	1-(4-Methoxyphenyl)pent-1-en-3-one	alpha,beta-supporting
3.2	07.046	732	Vanillylidene acetone	alpha,beta-supporting
3.2	07.049	829	1-(4-Methoxyphenyl)-4-methylpent-1-en-3-one	alpha,beta-supporting
3.2	07.206		4-(2,3,6-Trimethylphenyl)but-3-en-2-one	alpha,beta-candidate
3.3	05.062	1474	2-Phenylcrotonaldehyde	alpha,beta-supporting
3.3	05.099	1472	5-Methyl-2-phenylhex-2-enal	alpha,beta-supporting
3.3	05.100	1473	4-Methyl-2-phenylpent-2-enal	alpha,beta-supporting
3.3	05.175		2-Phenylpent-2-enal	alpha,beta-candidate
3.3	05.222		2-Phenyl-4-methyl-2-hexenal	alpha,beta-candidate
4.1	10.031	245	6-Pentyl-2H-pyran-2-one	alpha,beta-supporting
4.1	10.034	1163	5,6-Dihydro-3,6-dimethylbenzofuran-2(4H)-one	alpha,beta-supporting
4.1	10.036	1162	5,6,7,7a-Tetrahydro-3,6-dimethylbenzofuran-2(4H)-one	alpha,beta-supporting
4.1	10.037	246	Dec-2-eno-1,5-lactone	alpha,beta-supporting
4.1	10.044	438	Dodec-2-eno-1,5-lactone	alpha,beta-supporting
4.1	10.054		Non-2-eno-1,4-lactone	alpha,beta-candidate
4.1	10.057		3a,4,5,7a-Tetrahydro-3,6-dimethylbenzofuran-2(3H)-one	In 4.263rev1 - precursor - to be deleted
4.1	10.060		2-Decen-1,4-lactone	alpha,beta-candidate
4.1	10.066		Furan-2(5H)-one	alpha,beta-candidate
4.1	10.169	1164	tetrahydro-trimethyl-benzofuranone	alpha,beta-supporting
4.1	13.012	1172	6-methylcoumarin	alpha,beta-supporting
4.2	13.001	745	5-Methylfurfural	alpha,beta-supporting
4.2	13.018	450	Furfural	alpha,beta-supporting-& metabolism product
4.2	13.019	451	Furfuryl alcohol	Precursor
4.2	13.057	743	Furfuryl isovalerate	Precursor
4.2	13.062	740	Furfuryl propionate	Precursor
4.2	13.067	742	Furfuryl octanoate	Precursor
4.2	13.068	741	Furfuryl valerate	Precursor
4.2	13.128	739	Furfuryl acetate	Precursor

Structural group	FLAVIS number	JECFA number	Register name	alpha,beta-unsaturated carbonyl / ketone or precursor for such
4.3	13.031	751	2-Benzofurancarboxaldehyde	alpha,beta-supporting
4.4	13.010	1446	4-hydro-2,5-dimethylfuran-3(2H)-one	alpha,beta-supporting
4.4	13.084	1449	2-Ethyl-4-hydroxy-5-methyl-3(2H)-furanone	alpha,beta-supporting
4.4	13.085	1450	4-Hydroxy-5-methylfuran-3(2H)-one	alpha,beta-supporting
4.4	13.089	1451	2,5-Dimethyl-4-methoxyfuran-3(2H)-one	alpha,beta-supporting
4.4	13.099	1456	4-Acetoxy-2,5-dimethylfuran-3(2H)-one	alpha,beta-supporting
4.4	13.117		2,5-Dimethyl-4-ethoxyfuran-3(2H)-one	alpha,beta-candidate
4.4	13.119		2,5-Dimethylfuran-3(2H)-one	alpha,beta-candidate
4.4	13.157		5-Methylfuran-3(2H)-one	alpha,beta-candidate
4.4	13.175		4-Acetyl-2,5-dimethylfuran-3(2H)-one	alpha,beta-candidate
4.4	13.176	1519	furaneyl butyrate	Precursor
4.5	13.054	1503	2-acetylfuran	alpha,beta-supporting
4.5	13.066	1506	3-acetyl-2,5-dimethylfuran	alpha,beta-supporting
4.5	13.070	1512	2-hexanoylfuran	alpha,beta-supporting
4.5	13.083	1504	2-acetyl-5-methylfuran	alpha,beta-supporting
4.5	13.101	1505	2-acetyl-3,5-dimethylfuran	alpha,beta-supporting
4.5	13.105	1507	2-butyrylfuran	alpha,beta-supporting
4.5	13.163	1509	2-pentanoylfuran	alpha,beta-supporting
4.6	13.034	1497	3-(2-furyl)acrylaldehyde	alpha,beta-supporting
4.6	13.043	1501	furfurylidene-2-butanal	alpha,beta-supporting
4.6	13.044	1511	4-(2-furyl)but-3-en-2-one	alpha,beta-supporting
4.6	13.046	1498	3-(2-furyl)-2-methylprop-2-enal	alpha,beta-supporting
4.6	13.137	1502	3(2-furyl)-2-phenylprop-2-enal	alpha,beta-supporting
4.6	13.150	1499	3(5-methyl-2-furyl)prop-2-enal	alpha,beta-supporting
5.1	14.045	1305	2-acetyl-1-ethylpyrrole	alpha,beta-supporting
5.1	14.046	1306	2-Acetyl-1-methylpyrrole	alpha,beta-supporting
5.1	14.047	1307	2-Acetylpyrrole	alpha,beta-supporting
5.1	14.068	1319	2-Propionylpyrrole	alpha,beta-supporting
5.1	14.079		2-Acetyl-1,4,5,6-tetrahydropyridine	alpha,beta-candidate
5.2	15.004	1050	5-Methyl-2-thiophenecarbaldehyde	alpha,beta-supporting
5.2	15.024	1051	3-Acetyl-2,5-dimethylthiophene	alpha,beta-supporting
5.3	12.065	471	2,8-dithianon-4-en-4-carboxaldehyde	alpha,beta-supporting
5.3	12.079	470	2-(methylthiomethyl)but-2-enal	alpha,beta-supporting
5.3	12.087	505	2-(methylthiomethyl)-3-phenylpropenal	alpha,beta-supporting