

RECENT PROGRESS in the Consideration of Flavoring Ingredients Under the Food Additives Amendment

7. GRAS Substances

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□ IN KEEPING with previously outlined policies of the Flavor and Extract Manufacturers' Association, this paper reports the latest results of evaluations of GRAS (Generally Recognized as Safe) status of a number of substances.

These evaluations were carried out by an independent panel of experts chosen as described before (Hall and Oser, 1961) and consisting of: Dr. Anthony M. Ambrose, Medical College of Virginia; Dr. Horace W. Gerarde, B-D Laboratories; Dr. Maurice H. Seevers, University of Michigan; Dr. Howard C. Spencer, Dow Chemical Co.; Dr. Frank Strong, University of Wisconsin; Dr. Lauren A. Woods, Virginia Commonwealth University. Although he did not participate in any deliberations of the substances reported herein, Dr. David W. Fassett has recently rejoined the panel after an absence of four years.

The following minor corrections should be made in GRAS 6 (Oser and Ford, 1973): No. 3333 should read 3-BUTYLIDENE PHTHALIDE; No. 3348, use level in gelatins and puddings, should read 2 ppm instead of 6; No. 3350, use level in baked goods, should read

1.5 ppm and should have no use level in chewing gum; No. 3353, use levels in candy, should read 2 ppm, not 1 and use level in gelatins and puddings should read 1 ppm, not 2, and should have no use level in chewing gum; No. 3360 should read 3-METHYL-2-CYCLO-HEXEN-1-ONE; No. 3366 should read 2-METHYL-5-(METHYLTHIO)FURAN; No. 3373 should have no use level in chewing gum; No. 3377 should have use levels of 0.1 ppm in ice cream, candy, and meat; No. 3383 should read 0.05 ppm in meat, not 0.5; No. 3390 should have use level of 0.2 ppm in condiments.

REFERENCES

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SURVEY OF FLAVORING INGREDIENT USAGE LEVELS

Flavor and Extract Manufacturers' Association average maximum levels (in ppm) on which the Expert Panel based its judgments that the substances are generally recognized as safe for their intended uses.

FEMA No. and Substance	Bever- ages	Ice Cream, Ices, etc.	Candy	Baked Goods	Gelatins & Puddings	Chewing Gum	Meat, Meat Sauces, Soups	Milk, Dairy Products	Condi- ments, Pickles	Other Use Categories
3391 3-ACETYL-2,5-DIMETHYLFURAN	1.0	0.6	1.5	2.0	1.5	—	1.0	0.6	—	
3392 2-BUTYL-2-BUTENAL	0.5	0.6	1.5	2.0	1.5	—	—	0.6	—	
3393 n-BUTYL 2-METHYLBUTYRATE	1.0	3.0	5.0	5.0	3.0	—	—	—	—	Preserves & spreads—2.0
Capsaicin (see 3404)										
Damascenone (see 3420)										
2,5-Dimethyl-3-acetylfuran (see 3391)										
2-Ethylidenehexanal (see 3392)										
β-Ethylpyridine (see 3394)										
3394 3-ETHYLPYRIDINE	0.05	0.05	0.06	0.06	0.05	—	0.05	—	—	
3395 2-FORMYL-6,-6-DIMETHYL BICYCLO [3,1,1] HEPT-2-ENE	0.5	—	2.0	—	—	—	—	—	—	
α-Furfuryl caprylate (see 3396)										
3396 α-FURFURYL OCTANOATE	—	—	—	4.0	2.0	—	2.0	—	—	Margarine—2.0; Snacks—10

FEMA No. and Substance	Beverages	Ice Cream, Ices, etc.	Candy	Baked Goods	Gelatins & Puddings	Chewing Gum	Meat, Meat Sauces, Soups	Milk, Dairy Products	Condiments, Pickles	Other Use Categories
3397 α-FURFURYL PENTANOATE α-Furfuryl valerate (see 3397)	1.5	—	3.0	—	—	—	—	—	—	
3398 GLYCERYL TRIBENZOATE	190	—	—	—	—	—	—	—	—	
3399 2-HEPTEN-4-ONE	1.0	1.0	2.0	2.0	2.0	—	—	1.0	—	
3400 3-HEPTEN-2-ONE	1.0	1.0	2.0	2.0	2.0	—	—	0.7	—	
3401 2-HEPTYLFURAN 2-Hexanoylfuran (see 3418)	0.02	0.02	—	0.06	0.05	0.06	—	0.02	—	
3402 cis-3-HEXENYL BUTYRATE cis-3-Hexenyl caproate (see 3403)	0.5	5.0	10	—	5.0	—	—	—	—	
3403 cis-3-HEXENYL HEXANOATE	0.5	2.0	3.0	3.0	2.0	—	—	—	—	Preserves & spreads—2.0
3404 N-(4-HYDROXY-3-METHOXYBENZYL)-8-METHYL-6-NONENAMIDE	—	—	—	—	7.0	—	5.0	—	—	
3405 2-HYDROXYMETHYL-6,6-DIMETHYL BICYCLO [3,1,1] HEPT-2-ENYL FORMATE	3.0	3.0	3.0	3.0	3.0	—	—	—	3.0	Preserves & spreads—3.0
3406 2-ISOPROPYL-5-METHYL-2-HEXENAL Methionol (see 3415)	1.0	1.0	2.0	2.0	2.0	—	—	0.5	—	
3407 2-METHYL-2-BUTENAL 2-Methylcrotonaldehyde (see 3407)	5.0	5.0	5.0	5.0	5.0	5.0	2.5	—	—	
3408 METHYL DIHYRDOJASMONATE	1.0	1.0	1.0	1.0	1.0	—	—	—	1.0	Preserves & spreads—1.0
3409 5-METHYL-3-HEXEN-2-ONE	2.0	2.0	4.0	4.0	4.0	—	—	1.0	—	Cereals—2.0
3410 METHYL JASMONATE	1.0	1.0	1.0	1.0	1.0	—	—	—	1.0	Preserves & spreads—1.0
3411 METHYL LINOLEATE (48%)/METHYL LINOLENATE (52%) MIXTURE Methyl γ-methylmercapto)butyrate (see 3412)	10	10	10	10	10	—	—	—	10	Preserves & spreads—10
3412 METHYL 4-(METHYLTHIO)BUTYRATE Methyl 9,12-octadecadienoate/Methyl 9,12,15-octadecatrienoate mixture (see 3411)	—	—	—	10	—	—	10	—	—	
3413 2-METHYLPENTANAL Methyl (2-pent-2-enyl-3-oxo-1-cyclopentyl) acetate (see 3410) Methyl (2-pentyl-3-oxo-1-cyclopentyl) acetate (see 3408)	2.0	2.0	2.0	2.0	2.0	2.0	—	—	—	
3414 4-(METHYLTHIO)BUTANAL	0.5	0.5	1.0	1.0	—	—	5.0	—	—	Vegetables—5.0
3415 3-(METHYLTHIO)PROPANOL trans-8-Methyl-N-vanillyl-6-nonenamide (see 3404) 2-Methylvaleraldehyde (see 3413) Myrtenal (see 3395) Myrtenyl formate (see 3405)	0.05	—	0.1	—	—	—	—	—	—	
3416 3-OCTEN-2-ONE	1.0	1.0	2.0	2.0	2.0	—	—	0.5	—	
3417 3-PENTEN-2-ONE	2.0	2.0	4.0	4.0	4.0	—	—	1.0	—	Cereals—2.0
3418 PENTYL 2-FURYL KETONE	0.05	0.05	—	0.15	0.1	0.15	—	0.05	—	
3419 PROPYLENE GLYCOL DIBENZOATE	85	—	—	—	—	—	—	—	—	
3420 4-(2,6,6-TRIMETHYLCYCLOHEXA-1,3-DIENYL) BUT-2-EN-4-ONE	0.2	0.2	0.2	0.2	0.2	—	—	—	0.2	Preserves & spreads—0.2
3421 2,6,6-TRIMETHYLCYCLOHEX-2-ENE-1,4-DIONE	1.0	—	5.0	—	—	—	—	—	—	
3422 2,4-UNDECADIENAL	—	—	—	1.0	—	—	1.0	—	—	Cereals—1.0
3423 2-UNDECENAL	—	—	—	0.05	—	—	0.05	0.05	0.02	