

GRAS Flavoring Substances 30

30. GRAS Flavoring Substances. This list of substances will appear in the 30th publication authored by the Expert Panel of the Flavor and Extract Manufacturers Association on recent progress in the consideration of flavoring ingredients “generally recognized as safe” (GRAS) under conditions of their intended use in food flavorings in accordance with the 1958 Food Additives Amendment to the Federal Food, Drug and Cosmetic Act. For more information on FEMA GRAS™ see “About the FEMA GRAS Program” on the FEMA website.

FEMA EXPERT PANEL

Samuel M. Cohen, Ph.D., M.D., Chair of the FEMA Expert Panel, Professor, Dept. of Pathology and Microbiology, and Havlik-Wall Professor of Oncology, University of Nebraska Medical Center, Omaha, NE; Gerhard Eisenbrand, Ph.D. (Retired), Food Chemistry and Toxicology, University of Kaiserslautern, Kaiserslautern, Germany; Shoji Fukushima, M.D., Director, Japan Bioassay Research Center, Japan Industrial Safety and Health Association, Kanagawa, Japan; Nigel J. Gooderham, Ph.D., Professor of Molecular Toxicology and Senior College Consul, Dept. of Surgery and Cancer, Imperial College London, England; F. Peter Guengerich, Ph.D., Tadashi Inagami Professor of Biochemistry, Department of Biochemistry, Vanderbilt University School of Medicine, Nashville, TN; Stephen S. Hecht, Ph.D., Wallin Professor of Cancer Prevention, Masonic Cancer Center and Dept. of Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN; Thomas J. Rosol, D.V.M., Ph.D., M.B.A., Ohio University, Athens, Ohio; and Ivonne M.C.M. Rietjens, Ph.D., Vice-Chair FEMA Expert Panel, Professor of Toxicology and Chair, Dept. of Toxicology, Wageningen.

The Expert Panel of the Flavor and Extract Manufacturers Association of the United States (FEMA) has evaluated substances for GRAS status under their conditions of intended use as flavoring substances since the early 1960s. The regulations of the U.S. Food and Drug Administration (FDA), and U.S. law, require that determinations that flavor substances and other food ingredients are “generally recognized as safe” (GRAS) be done in such a way that all information related to GRAS determinations is publicly available. The FEMA Expert Panel has met this requirement by publishing the identity of all flavoring substances determined to be GRAS by the Panel, and has submitted all information related to its GRAS reviews on these substances to the FDA for inclusion in the FDA databases. Information that was reviewed by the Expert Panel in the course of their evaluation of new flavoring substances is typically submitted to FDA within six months of the publication of their identity. The Expert Panel also publishes separate extensive reviews of scientific information on all FEMA GRAS flavoring substances in the peer-reviewed scientific literature in the form of reports on the safety of structurally-related groups of flavoring substances. These important actions assure that there is “general recognition” of the safety of these substances when used as flavors.

DISCLAIMER: The user of this list agrees that its use of this document and the information contained therein is at the user's sole risk and that FEMA shall have no liability to any person for any loss or damage arising out of the use of this document. This document and the information contained herein is subject to change. It is the responsibility of the user to ensure the information is up to date.

Table 1. Primary names (in boldface) Synonyms (in lightface)

FEMA No.	Primary Names and Synonyms
4943	Decanedioic acid 1,8-Octanedicarboxylic acid 1,10-Decanedioic acid Sebacic acid Decanedicarboxylic acid
4949	<i>Corynebacterium ammoniagenes</i> Fermentation product <i>C. ammoniagenes</i> dried fermentation broth
4964	<i>Corynebacterium glutamicum</i> cell free fermentation broth <i>C. glutamicum</i> dried fermentation broth

Table 2. Average Usual Use Levels (ppm)/Average Maximum Use Levels (ppm) on which the FEMA Expert Panel based its judgments that the substances are generally recognized as safe (GRAS)

	Decanedioic acid	<i>Corynebacterium ammoniagenes</i> Fermentation product	<i>Corynebacterium glutamicum</i> cell free fermentation product
Category/FEMA No.	4943	4949	4964
Baked Goods	40/200	1000/7500	1000/11000
Beverages, Non-Alcoholic	20/50	0/0	0/0
Beverages, Alcoholic	15/30	0/0	0/0
Breakfast Cereals	50/100	1000/5000	1000/11000
Cheeses	40/100	2000/7500	3000/11000
Chewing Gum	100/300	0/0	0/0
Condiments and Relishes	30/100	3000/20000	3000/18000
Confections and Frostings	40/100	0/0	0/0
Egg Products	50/100	1000/10000	1000/7000
Fats and Oils	50/100	0/0	0/0
Fish Products	50/100	3000/10000	3000/9000
Frozen Dairy	40/100	0/0	0/0
Fruit Ices	30/60	0/0	0/0
Gelatins and Puddings	30/60	0/0	0/0
Granulated Sugar	0/0	0/0	0/0
Gravies	40/100	3000/20000	3000/11000
Hard Candy	50/200	0/0	0/0
Imitation Dairy	40/100	2000/10000	3000/11000
Instant Coffee and Tea	30/100	0/0	0/0
Jams and Jellies	50/100	0/0	0/0
Meat Products	50/100	2000/15000	3000/11000
Milk Products	40/100	0/0	0/0
Nut Products	40/100	1000/10000	1000/4000
Other Grains	50/200	0/0	0/0
Poultry	50/100	2000/10000	3500/7500
Processed Fruits	50/100	0/0	0/0
Processed Vegetables	50/100	0/0	0/0
Reconstituted Vegetable Protein	50/100	0/0	0/0
Seasonings and Flavors	50/100	5000/50000	20000/150000
Snack Foods	50/100	1000/10000	7500/20000
Soft Candy	50/200	0/0	0/0
Soups	50/300	3000/20000	3500/18500
Sugar Substitutes	30/60	0/0	0/0
Sweet Sauces	40/100	0/0	0/0

Table 3. Identity for Natural Flavor Complexes as Evaluated by the FEMA Expert Panel

FEMA No.	FEMA Primary Name	The Identification Value as Reviewed by the FEMA Expert Panel
4949	<i>Corynebacterium ammoniagenes</i> Fermentation product	20-25% Miscellaneous-nitrogen containing compounds; 2-5% Amino acids; 3-5% Minerals; <7% Carbohydrates typically monosaccharides; 50-55% Dextrins
4964	<i>Corynebacterium glutamicum</i> cell free fermentation product	30% Glutamic acid; <10% Simple carbohydrates; <5% Sum of other individual amino acids; <60% Dextrins