

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reference value	SF/UF	Reports			Remarks
				Toxicological findings	Point of Departure				Value	English			Japanese	Date of evaluation		
					Route	Test	Duration	Species							Endpoint	
(3-Amino-3-carboxypropyl)dimethylsulfonium chloride	3493-12-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20110215712&fileId=201	2011/5/12	-
(E)-2-Methyl-2-butenal, (E)-2-Methylbut-2-enal	497-03-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20110104670&fileId=201	2011/4/21	-
1-Hydroxyethylidene-1,1-diphosphonic acid	2809-21-4	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Increased erythrocyte counts Decreased erythrocyte volume fractions Renal tubule necrosis Abnormal incisors Gastrointestinal disturbances Diarrhea 	Oral (feed)	Chronic toxicity study	52 weeks	Dog	<ul style="list-style-type: none"> Fecal occult blood Thickening of epiphyseal cartilage 	NOAEL: 1.3 mg/kg bw per day	ADI: 0.013 mg/kg bw	SF:100	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20170321219&fileId=201	2017/4/18	-
1-Methylnaphthalene	90-12-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya2014105273&fileId=501	2015/5/19	-
1-Penten-3-ol, Ethyl vinyl carbinol	616-25-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20100202001&fileId=002	2010/4/28	-
2-(3-Phenylpropyl)pyridine	2110-18-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20100712462&fileId=021	2010/10/7	-
2,3,5,6-Tetramethylpyrazine	1124-11-4	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20031121102&fileId=06_001_002	2004/5/27	-
2,3,5-Trimethylpyrazine	14667-55-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20041105100&fileId=06_001_002	2005/3/17	-
2,3-Diethyl-5-methylpyrazine	18138-04-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20100712463&fileId=021	2010/10/7	-
2,3-Diethylpyrazine	15707-24-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20140213033&fileId=401	2014/8/26	-
2,3-Dimethylpyrazine	5910-89-4	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20080208003&fileId=002	2008/7/31	-
2,5-Dimethylpyrazine	123-32-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20080208004&fileId=002	2008/7/31	-
2,6-Dimethylpyrazine	108-50-9	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20080208005&fileId=002	2008/7/31	-
2,6-Dimethylpyridine	108-48-5	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kya20100514404&fileId=06_001	2010/7/15	-

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25-Hydroxycholecalciferol monohydrate	63283-36-3 (as 25-hydroxycholecalciferol monohydrate)	Food Additives (Flavoring)	Negative	<ul style="list-style-type: none"> Significant increase in ratio of skeletal abnormalities in the fetus Hypercalcemia Hypervitaminosis D Reduction in systolic blood pressure 	Oral (tablet)	Intervention study, Case report	-	Human	<ul style="list-style-type: none"> Hypercalcemia Hypercalciuria 	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20190110001&fileid=20110001	2022/5/18	-	
2-Ethyl-3, (5or6)-dimethylpyrazine	13925-07-0, 55031-15-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20031121106&fileid=06_001_002	2004/5/27	-	
2-Ethyl-3-methylpyrazine	15707-23-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20050307193&fileid=06_001_002	2005/8/18	-	
2-Ethyl-5-methylpyrazine	13360-64-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20090313001&fileid=002	2009/10/8	-	
2-Ethyl-6-methylpyrazine	13925-03-6	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20101206001&fileid=201	2011/3/31	-	
2-Ethylpyrazine, Ethylpyrazine	13925-00-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20040526001&fileid=002	2008/11/27	-	
2-Methylbutanol	137-32-6	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20071024005&fileid=06_001_001	2006/10/12	-	
2-Methylbutylamine	96-15-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20171201129&fileid=202	2018/5/29	-	
2-Methylbutylaldehyde	96-17-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20081016002&fileid=002	2009/1/22	-	
2-Methylpyrazine	109-08-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20040526002&fileid=002	2008/11/27	-	
2-Pentanol, Pentan-2-ol, sec-Amyl alcohol	6032-29-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20081016001&fileid=002	2009/1/22	-	
3-Ethylpyrazine	536-78-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20100615441&fileid=201	2013/2/18	-	
3-Methyl-2-butanol	598-75-4	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20090313003&fileid=002	2009/7/23	-	
3-Methyl-2-butenal	107-86-8	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	-	-	https://www.fsc.go.jp/fscis/attachefile/download?retrieveid=kva20100910513&fileid=101	2011/1/27	-	

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3-Methyl-2-butenol, 3-Methyl-2-buten-1-ol, 3-Methylbut-2-en-1-ol	556-82-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20100202002&fileId=002	2010/4/28	-
5,6,7,8-Tetrahydroquinoline	34413-35-9	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20090313002&fileId=002	2009/8/27	-
5-Ethyl-2-methylpyridine	104-90-5	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20100615442&fileId=06021	2010/8/26	-
5-Methylquinoline	13708-12-8	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	http://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20050307194&fileId=06001_002	2005/8/18	-
6,7-Dihydro-5-methyl-5H-cyclopentapyrazine, 5-Methyl-6,7-dihydro-5H-cyclopenta(b)pyrazine	23747-48-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20100816498&fileId=101	2011/1/27	-
6-Methylquinoline	91-62-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20081121003&fileId=002	2009/5/21	-
Acetaldehyde	75-07-0	Food Additives (Flavoring)	Positive	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavouring agent as it is completely metabolized into biogenic substances, and thus, its level is presumed not to exceed the physiological range.	-	-	Report https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20031121192&fileId=06001_002	2005/7/21	-
Acetic acid glacial	64-19-7	Food Additives	Negative	-	-	-	-	-	-	The safety of acetic acid was considered in the reports in "Calcium acetate" and "Calcium oxide" in 2013. Having considered toxicokinetics and toxicity of acetic acid, glacial, the FSCJ had not identified safety concern for acetic acid, glacial and did not identify any findings that threaten public health after the evaluation. Therefore, the FSCJ did not consider toxicokinetics and toxicity of acetic acid, glacial.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20170321219&fileId=201	2017/4/18	-
Acetylated distarch adipate	68130-14-3	Food Additives	Negative	• Suppressed body weight gain • Hyperplasia of renal pelvic epithelium • Reduction of adipose tissue • Calcification • Reduced feed intake • Increased urinary magnesium levels and calcium concentration • Distention of the cecum • Increased cecum weight	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20081030002&fileId=06001_001	2007/11/29	-
Acetylated distarch phosphate	9067-33-8	Food Additives	Negative	• Increased cecum weight • Decrease in growth • Increased urinary calcium concentration • Increased urinary excretion of calcium • Hyperplasia of renal pelvic epithelium with calcium deposition • Decreased thyroid weight	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20081030002&fileId=06001_001	2007/11/29	-
Acetylated oxidized starch	68187-08-6	Food Additives	Negative	• Increased cecum weight • Distention of the cecum • Hyperplasia of bladder epithelium • Thickening of renal pelvic epithelium • Calcium deposition in renal pelvis and cortico-medullary junction	Oral (feed)	Subacute toxicity study	14 days	Rat	• Increased cecum weight • Distention of the cecum	NOEL: 5.9 g/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20081030002&fileId=06001_001	2007/11/29	-
Advantame	714229-20-6	Food Additives	Negative	• Digestive disorders	Oral (gavage)	Prenatal developmental toxicity study	-	Rabbit	• Digestive disorders	NOAEL: 500 mg/kg bw per day	ADI: 5.0 mg/kg bw	SF:100	Report https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20120402447&fileId=501 Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrieveId=kva20120402447&fileId=201	2013/7/30	-	

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Aluminium ammonium sulfate dodecahydrate, Aluminium ammonium sulfate decahydrate, Aluminium ammonium sulfate tetrahydrate, Aluminium ammonium sulfate trihydrate, Aluminium ammonium sulfate dihydrate, Aluminium potassium sulfate	7784-26-1 (dodecahydrate), 7784-25-0 (anhydrate)	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Renal damage (hydronephrosis, urethral dilatation, obstruction and/or presence of calculi) Retardation of sexual development 	Oral (drinking water)	Developmental toxicity study	-	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Renal damage (hydronephrosis, urethral dilatation, obstruction and/or presence of calculi) 	NOAEL: 30 mg/kg bw per day (as aluminium)	TWI: 2.1 mg/kg bw (as aluminium)	SF:100	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170321217&fileId=202	2017/12/19	-		
Aluminium potassium sulfate dodecahydrate, Aluminium potassium sulfate decahydrate, Aluminium potassium sulfate hexahydrate, Aluminium potassium sulfate trihydrate, Aluminium potassium sulfate dihydrate, Aluminium potassium sulfate	7784-24-9 (dodecahydrate), 10043-67-1 (anhydrate)	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Renal damage (hydronephrosis, urethral dilatation, obstruction and/or presence of calculi) Retardation of sexual development 	Oral (drinking water)	Developmental toxicity study	-	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Renal damage (hydronephrosis, urethral dilatation, obstruction and/or presence of calculi) 	NOAEL: 30 mg/kg bw per day (as aluminium)	TWI: 2.1 mg/kg bw (as aluminium)	SF:100	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170321217&fileId=202	2017/12/19	-		
Ammonium alginate	9005-34-9	Food Additives	Negative	-	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the group ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20050328692&fileId=005	2006/3/30	-	
Ammonium hydrogen sulfite water	10192-30-00	Food Additives	Negative	<ul style="list-style-type: none"> Mucosal folds in the stomach Black change of the cecum mucosa Hyperplasia of mucosal glands in the pyloric and cardiac regions of stomach Epithelial hyperplasia in the pyloric and cardiac regions of stomach Intraepithelial microabscesses in esophagus Epithelial hyperplasia and neutrophilic infiltration Macrophages laden with greenish-black pigment granules Hyperplasia of forestomach epithelium Suppressed body weight gain Reduced feed intake Increased in fat phagocytosis Kupffer cells 	Oral (feed)	Repeated-dose toxicity study	48 weeks	Pig	<ul style="list-style-type: none"> Mucosal folds in the stomach Black change of the cecum mucosa Hyperplasia of mucosal glands in the pyloric and cardiac regions of stomach Epithelial hyperplasia in the pyloric and cardiac regions of stomach Intraepithelial microabscesses in esophagus Epithelial hyperplasia and neutrophilic infiltration Macrophages laden with greenish-black pigment granules 	NOAEL: 71 mg/kg bw per day (as sulfur dioxide)	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20200218031&fileId=301	2020/12/8	-
Ammonium isovalerate	1449430-58-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20141209297&fileId=201	2014/12/9	-	
Amyl alcohol (Pentanol)	71-41-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20041105101&fileId=06_001_002	2005/3/17	-	
Asparaginase from <i>Aspergillus niger</i> expressed in <i>Aspergillus niger</i>	9015-68-3 (as L-Aspartic Acid amidohydrolyase)	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Repeated-dose toxicity study	13 weeks	Rat	No adverse effect observed at highest level (1038 mg TOS/kg bw per day).	NOAEL: 1,038 mg TOS/kg bw per day	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20120927657&fileId=201	2014/1/27	-		
Asparaginase from <i>Aspergillus oryzae</i> expressed in <i>Aspergillus oryzae</i> NZYM-SP	9015-68-3 (as L-Aspartic Acid amidohydrolyase)	Food Additives	Negative	No adverse effect observed.	Oral (gavage)	Repeated-dose toxicity study	13 weeks	Rat	No adverse effect observed at highest level (10 mL/kg bw per day (880 mg TOS/kg bw per day)).	NOAEL: 10 mL/kg bw per day (equivalent to 880 mgTOS/kg bw per day)	-	-	Summary http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20141017263&fileId=202	2015/12/8	-		
Azoxystrobin	131860-33-8	Food Additives & Pesticides	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Anemia Common bile-duct dilatation Hyperplasia of bile ductular epithelium Reduced body weight Reduced feed intake 	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	<ul style="list-style-type: none"> Suppressed body weight gain 	NOAEL: 18.2 mg/kg bw per day	ADI: 0.18 mg/kg bw	SF:100	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20190731045&fileId=213	2020/3/10	-		
Biotin	58-85-5	Food Additives	Negative	-	-	-	-	-	Inable to set NOAEL/LOAEL due to lack of reliable toxicological findings.	The FSCJ decided no toxicological concern for Biotin. The reasons are as follows: -Biotin is used as medicin up to 2 mg/person/day. No adverse effects are reported. -No tolerable upper intake level is set -Biotin should be ingested as a nutrient.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20130731245&fileId=201	2014/1/20	-	
Butanal, Butylaldehyde	123-72-8	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20071024004&fileId=06_001_001	2007/3/22	-	
Butanol, Butyl alcohol	71-36-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20050307195&fileId=06_001_002	2005/9/22	-	

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Butylamine, 1-Butanamine, 1-Aminobutane, n-Butylamine	109-73-9	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2010/3/4	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20090914002&fileId=002	
Calcium acetate	62-54-4 (as calcium acetate) 5743-26-0 (as calcium acetate monohydrate)	Food Additives	Negative	-	Oral (feed)	Repeated-dose toxicity study	1 year	Rat	No adverse effect observed at highest level (2500 mg/kg bw per day as calcium)	NOAEL: 2500 mg/kg bw per day (as calcium) Toxicity of acetate derived from calcium acetate can be ignored taken into account that acetate enters into the physiological metabolism pathway.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2013/4/15	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20110426022&fileId=201
Calcium alginate	9005-35-0	Food Additives	Negative	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the group ADI.	-	-	2006/3/30	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20050328692&fileId=005	
Calcium carbonate	471-34-1	Food Additives	Negative	• Renal calculi • Urinary bladder stones • Increase in blood pressure • Suppressed body weight gain • Reduction in food consumption • Lower feed efficiency	Oral (tablet)	Case report	1 month	Human	• Milk-Alkali syndrome	LOAEL: 3000 mg/person per day	Tolerable Upper Intake Level: 2000 mg/person/day	UF:1.5	-	2020/6/16	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva19100507704&fileId=201
Calcium L-ascorbate	5743-27-1 (anhydride) 5743-28-2 (hydrite)	Food Additives	Negative	-	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2008/6/19	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20081030009&fileId=06001_001
Calcium L-tartrate	5892-21-7 (tetrahydrate)	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	No adverse effect observed at highest level (2440 mg/kg bw per day (as L-tartaric acid)).	NOAEL: 2440 mg/kg bw per day (as L-tartaric acid)	ADI: 24 mg/kg bw (for Dipotassium L- Tartrate, Metatartaric acid and Calcium L-Tartrate / An ADI is expressed as L-tartaric acid)	SF:100	-	2022/1/26	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20210727163&fileId=201
Calcium oxide	1305-78-8	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Repeated-dose toxicity study	1 year	Rat	No adverse effect observed at highest level (2500 mg/kg bw per day(as calcium)).	NOAEL: 2500 mg/kg bw per day (as calcium)	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2013/4/15	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20110426023&fileId=201
Calcium phytate	3615-82-5 (C ₆ H ₁₈ O ₂₄ P ₆ · xCa · xMg)	Food Additives	Negative	• Suppressed body weight gain • Increase in ratio of skeletal abnormalities in the fetus	Oral (tablet)	Intervention study	4 weeks or 12 weeks	Human	No toxic effects were observed in either the study in which humans ingested 1800-3000 mg/person/day of phytic acid for 4 weeks or 600 mg/person/day for 12 weeks.	Calcium phytate dissociates into phytic acid ion, calcium ion, and magnesium ion in grape wine and in the stomach, so a comprehensive risk assessment was conducted based on the evaluation of phytic acid, calcium ion, and magnesium ion (calcium ion and magnesium ion have been evaluated). The intake of phytic acid from "Calcium Phytate" is low compared to the current intake, no toxic effects have been observed in human case reports using phytic acid, and although a NOAEL was obtained from the toxicity test results of phytic acid, the maternal toxicity test in the developmental toxicity test that was the basis for the NOAEL. Since both the general toxicity findings in animals and the fetal developmental toxicity findings were mild findings observed only in the highest dose group and the toxic effects were not severe, it was concluded that phytic acid derived from "calcium phytate" is not a safety concern and that it is not necessary to identify an ADI.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2022/9/6	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva2020125256&fileId=201
Calcium silicate	1344-95-2	Food Additives	Negative	-	Oral (feed)	Repeated-dose toxicity study	93 weeks	Mouse	No adverse effect observed at highest level (7500 mg/kg bw per day (as silicon dioxide)).	NOAEL: 7500 mg/kg bw per day (as silicon dioxide)	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2015/1/13	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20140829220&fileId=201
Calcium silicate	1344-95-2	Food Additives	Negative	-	Oral (feed)	Repeated-dose toxicity study	1 year	Rat	No adverse effect observed at highest level (2500 mg/kg bw per day(as calcium)).	NOAEL: 2500 mg/kg bw per day (as calcium)	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2015/1/13	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20140829220&fileId=201
Calcium sorbate	7492-55-9	Food Additives	Negative	No adverse effect observed below 5% (2500 mg/kg bw per day).	Oral (feed)	Two-generation reproductive activity study	-	Rat	No adverse effect observed at highest level (2500 mg/kg bw per day).	NOAEL: 2500 mg/kg bw per day	ADI: 25 mg/kg bw	SF:100	-	2008/11/20	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20070320001&fileId=002
Calcium stearate	-	Food Additives	Negative	-	Oral (unspecified)	Repeated-dose toxicity study	9 months	Rat	No adverse effect observed at highest level (1000 mg/kg bw per day).	NOAEL: 1000 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2004/3/4	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20040304107&fileId=06001_002
Canthaxanthin	514-78-3	Food Additives	Negative	• Reduced scotopic b-wave amplitude • Dose dependent increase in retinal crystals	Oral (treatment)	Intervention study	15 mg/day for 5 weeks, increasing to 60 mg/day for 5 weeks, 90 to 120 mg/day during the summer months	Human	• Reduced scotopic b-wave amplitude	NOAEL: 0.25 mg/kg bw per day	ADI: 0.025 mg/kg bw	SF:10	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20110426020&fileId=401	2014/10/14	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20110426020&fileId=201
Chitin-glucan	-	Food Additives	Negative	-	Oral (treatment)	Intervention study	6 weeks	Human	-	No toxic effect at 4.5 g/day.	No safety concern when used in accordance with "Standard for Use of Food Additives" .	-	-	2020/11/17	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20200218032&fileId=301

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reports			Remarks		
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation			
					Route	Test	Duration	Species							Endpoint	Value
Chlorous acid aqueous solution	13898-47-0	Food Additives	Negative	<ul style="list-style-type: none"> Damage to erythrocyte Increased relative adrenal gland weight Ulcer formation Chronic inflammation Edema Decrease in average pup weaning weight Decreases in T3, T4 level Decrease in amplitude of auditory startle response 	Oral (drinking water)	Two-generation reproductive activity study	-	Rat	Decrease in amplitude of auditory startle response	NOAEL: 2.9 mg/kg bw per day (as chlorite ion)	ADI: 0.029 mg/kg bw	SF:100	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20120402449&fileId=002	2012/7/9	-
Copper Gluconate	-	Food Additives	Negative	<ul style="list-style-type: none"> Liver injury Copper deposition in eyeballs 	-	-	-	-	-	-	Tolerable upper intake level (UL) : 9 mg/person per day	-	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20031202104&fileId=06001_002	2004/5/27	-
Cupric sulfate	7758-99-8 (Copper(II) Sulfate Pentahydrate)	Food Additives	Negative	<ul style="list-style-type: none"> Decreased absolute / relative pancreas weight Hyperplasia and hyperkeratosis of the limiting ridge of the forestomach Increase in inflammatory foci in the liver Increased eosinophilic droplet in renal tubule Karyomegaly in renal tubule epithelium 	Oral (feed & tablet)	Intervention study	12 weeks	Human	-	No effects of copper ingestion were observed after humans ingested 10 mg/person/day of copper gluconate for 12 weeks.	No safety concern when used in accordance with "Standard for Use of Food Additives".	-	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20210928209&fileId=201	2022/8/9	-
d- and dl- alpha Tocopherol acetate	-	Food Additives	Negative	<ul style="list-style-type: none"> Increase in the activities of ALT Increased liver weight 	-	-	-	-	-	According to the submitted toxicological studies, Reproductive and developmental toxicity, Carcinogenicity and Genotoxicity are negative. Based on human findings, no adverse effects are reported when estimated daily intake of Vitamin E is about 160 mg as alpha-tocopherol equivalent. In addition, this substance have already been used in the field of medicinal drug in Japan and no concerns for safety are reported although similar substances (alpha- tocopherol and dl-alpha tocopherol) have been used as food additives.	No safety concern if d-, dl- alpha tocopherol is used in Foods with Health Claims only and alpha- tocopherol content is less than 150 mg/kg when the foods are consumed at recommended daily intake. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20071024007&fileId=06001_002	2006/9/21	-
Difenoconazole	119446-68-3	Food Additives & Pesticides	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Increased liver weight Hepatocellular hypertrophy Hepatocellular adenoma Hepatocellular carcinoma Cataract Decreased forelimb grip strength 	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	Hepatocellular hypertrophy	NOAEL: 0.96 mg/kg bw per day	ADI: 0.0096 mg/kg bw	SF:100	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva19022002702&fileId=201	2019/6/18	-
Dimethyl dicarbonate	4525-33-1	Food Additives	Negative	No adverse effect observed.	-	-	-	-	-	The FSCJ considers it inappropriate to determine the NOAEL of dimethyl dicarbonate (DMDC) based on the results from relevant studies on DMDC-added beverages where the actual exposure to DMDC was unknown. However, none of toxicity was observed in the studies on repeated dose toxicity, combined repeated dose toxicity and carcinogenicity, and reproductive developmental toxicity of the DMDC-added beverages.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20180111146&fileId=202	2019/1/29	<p>Impurities</p> <p>1. Methanol Considering that methanol derived from DMDC is absorbed, metabolised and excreted similarly to methanol derived from ordinal foods, as well as taken into consideration human data, methanol intake from ordinal eating habits and the ADI specified by FDA, FSCJ concluded the methanol has no safety concern as long as DMDC is appropriately used as an additive.</p> <p>2. Methoxycarbonyl compounds (MCC) MCC produced from DMDC added to the beverages of target of the draft standards for use had no safety concern as long as DMDC is used appropriately as an additive, taking into consideration the fact that no toxicity was observed in the studies with DMDC added beverages.</p> <p>3. Ethyl methyl carbonate (MEC) NOAEL: 1.094 mg/kg bw per day FSCJ concluded that MEC produced from DMDC added to the beverages had no safety concern as long as there was a sufficient margin and DMDC is used appropriately as an additive.</p> <p>4. Methyl carbamate (MC) NOAEL: 200 mg/kg bw per day for male, 250 mg/kg bw per day for female Non-carcinogenic at the dose of 100 mg/kg bw per day MC derived from DMDC had no safety concern relevant to human health as long as DMDC was used appropriately as an additive, since there was sufficient margin between the estimated daily intake and the NOAEL or non-carcinogenic dose.</p> <p>5. Dimethyl carbonate (DMC) NOAEL: 890 mg/kg bw per day DMC derived from DMDC had no safety concern relevant to human health as long as DMDC was used appropriately as an additive since there was sufficient margin between the estimated daily intake and the NOAEL.</p>	
Dipotassium DL - tartrate	-	Food Additives	Negative	<ul style="list-style-type: none"> Increase in white blood cells, protein in urine Nausea Vomiting Abdominal cramps Nasal obstruction Itch Sneeze Hypo-anosmia Nosebleed Sore throat Dysphonia 	Oral (feed)	Repeated-dose toxicity study	13 weeks	Rat	Increase in white blood cells, protein in urine	NOAEL: 60 mg/kg bw per day (as DL-Tartaric acid)	No safety concern when used in accordance with "Standard for Use of Food Additives".	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva19100907702&fileId=301	2020/9/15	-
Dipotassium L-tartrate	6100-19-2 (as hemihydrate)	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	No adverse effect observed at highest level (2440 mg/kg bw per day (as L-tartaric acid)).	NOAEL: 2440 mg/kg bw per day (as L-tartaric acid)	ADI: 24 mg/kg bw (for Dipotassium L- Tartrate, Metatartaric acid and Calcium L-Tartrate / An ADI is expressed as L-tartaric acid)	SF:100	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20210727163&fileId=201	2022/1/26	-
Distarch phosphate	55963-33-2	Food Additives	Negative	No adverse effect observed.	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva20081030002&fileId=06001_001	2007/11/29	-
Fludioxonil, 4-(2,2-Difluoro-1,3-benzodioxol-4-yl)-1H-pyrrole-3-carbonitrile	131341-86-1	Food Additives & Pesticides	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Hepatocellular hypertrophy Chronic nephropathy Nephropathy Anemia Increase in T.Chol Increased relative liver weight Increased absolute liver weight Decreased locomotor activity 	Oral (feed)	Chronic toxicity study	1 year	Dog	<ul style="list-style-type: none"> M.F : Suppressed body weight gain M : Increase in T.Chol , Increased relative liver weight F : Increased absolute / relative liver weight 	NOAEL: 33.1 mg/kg bw per day	ADI: 0.33 mg/kg bw	SF:100	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kva17102611802&fileId=201	2017/11/28	-

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reports			Remarks		
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation			
					Route	Test	Duration	Species							Endpoint	Value
Glutamyl-valyl-glycine	38837-70-6	Food Additives	Negative	-	Oral (feed)	Repeated-dose toxicity study	28 days	Rat	No adverse effect observed at highest level (M : 1112.7 mg/kg bw per day, F : 1123.8 mg/kg bw per day).	NOAEL: 1000 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2013/8/5	-	
Hexylamine	111-26-2	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2018/5/29	-	
Hydrogen peroxide	7722-84-1	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Decrease of erythrocyte count, Hb, lymphocytes, Ht, plasma proteins Decreased absolute heart, liver and kidney weights Crusting on gastric mucosal erosions Lymphocyte infiltration in the gastric muscle layer 	Oral (gavage)	Repeated-dose toxicity study	100 days	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Decrease of Ht, plasma proteins 	NOAEL: 30 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2016/2/23	-	
Hydrogen peroxide	7722-84-1	Food Additives	Negative	<ul style="list-style-type: none"> Decreased feed intake Suppressed body weight gain Decrease of erythrocyte count, Hb, Ht, lymphocytes Decreased absolute heart, liver and kidney weights Crusting on gastric mucosal erosions 	Oral (gavage)	Subacute toxicity study	100 days	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Decrease of Ht, plasma proteins 	NOAEL: 30 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2017/4/18	-	
Hydroxypropyl distarch phosphate	53124-00-8	Food Additives	Negative	<ul style="list-style-type: none"> Reduced body weight Increased cecum weight Calcium deposition in renal pelvis Hyperplasia of renal pelvic epithelium 	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2007/11/29	-	
Hydroxypropyl methylcellulose	9004-65-3	Food Additives	Negative	<ul style="list-style-type: none"> Diarrhea Suppressed body weight gain Hepatocellular necrosis Hepatocellular degeneration Slightly decrease in erythrocyte count and Hb Growth retardation 	-	-	-	-	Hydroxypropylmethylcellulose has been used as a medicinal additive for a long time. No adverse effects have been reported. Hydroxypropylmethylcellulose, methylcellulose and carboxymethylcellulose were orally treated up to 30 g/person/day. However, no adverse effects were observed except for digestive tract such as diarrhea.	FSCJ decided no toxicological concern for Hydroxypropylmethylcellulose. Reasons are as follows: -This additive is merely absorbed. The only adverse effect observed in toxicity studies is soft feces in digestive tract, which is the symptom when large amount of dietary fibre is ingested -This substance is used in the area of medicine. Safety concern have not been reported. -JECFA allocated ADI not specified for seven celluloses including this additive.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2006/8/24	-	
Hydroxypropyl starch	68130-14-3	Food Additives	Negative	<ul style="list-style-type: none"> Eduction in growth rate with lower food utilization Diarrhea Distention of the cecum 	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2007/11/29	-	
Hydroxypropylcellulose	9004-64-2	Food Additives	Negative	<ul style="list-style-type: none"> Diarrhea Soft stool 	-	-	-	-	Hydroxypropylcellulose has been used as a medicinal additive for a long time. No adverse effects have been reported. Hydroxypropylmethylcellulose, methylcellulose and carboxymethylcellulose were orally treated up to 30 g/person/day. However, no adverse effects were observed except for digestive tract such as diarrhea.	FSCJ decided no toxicological concern for Hydroxypropylcellulose. Reasons are as follows: -This additive is merely absorbed. The only adverse effect observed in toxicity studies is soft feces in digestive tract, which is the symptom when large amount of dietary fibre is ingested -This substance is used in the area of medicine. Safety concern have not been reported. -JECFA allocated ADI not specified for seven celluloses including this additive.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2005/3/10	-	
Hypobromous acid water (as Hypobromous acid)	13517-11-8	Food Additives	Negative	<ul style="list-style-type: none"> Deposition of lipid material in adrenal gland Increased kidney weight Suppressed body weight gain Increased cardiac amyloidosis Increased ovarian amyloidosis 	Oral (gavage)	Developmental toxicity study	-	Rabbit	Increased incidence of anterior sacral vertebra number 27	NOAEL: 100 mg/kg bw per day (as 5,5-dimethyl hydantoin (DMH))	ADI: 1 mg/kg bw	SF:100	-	-	2018/10/2	-
Hypobromous acid water (as Hypobromous acid)	13517-11-8	Food Additives	Negative	<ul style="list-style-type: none"> Increased relative thyroid weight Decreased relative adrenal gland weight Decrease of T4 	Oral (unspecified)	Intervention study	12 weeks	Human	No adverse effect observed at highest level (9 mg/kg bw per day (as bromide ion)).	NOAEL: 9 mg/kg bw per day (as bromide ion)	ADI: 0.9 mg/kg bw	SF:10	-	-	2018/10/2	-
Hypochlorous acid water	-	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain 	-	-	-	-	-	-	No safety concern when the additive is completely removed from the final product.	-	-	2007/1/25	-	
Isoamyl alcohol (3-Methylbutanol)	123-51-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2005/3/17	-	
Isobutanol	78-84-2	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2006/12/7	-	

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reports			Remarks	
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation		
					Route	Test	Duration	Species							Endpoint
Isobutanol	78-83-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2004/5/27	-
Isobutylamine	78-81-9	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20171201129&fileId=204	2018/5/29	-
Isopentylamine	107-85-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2009/11/12	-
Isopropanol	67-63-0	Food Additives (Flavoring)	Negative	• Increased mortality during the early postnatal period • Suppressed body weight gain	Oral (gavage)	Two-generation reproductive and developmental toxicity study	-	Rat	• Increased mortality during the early postnatal period	NOAEL: 100 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2013/5/27	-
Isopropylamine	75-31-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20171201129&fileId=204	2018/5/29	-
Isoquinoline	119-65-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2011/2/3	-
Isovaleraldehyde	590-86-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2008/3/27	-
L-Sodium bitartrate monohydrate	Unable to identify cas no. due to lack of information on optical activity	Food Additives	Negative	• Vomiting • Abdominal cramps	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	No adverse effect observed at highest level (2440 mg/kg bw per day (as L-tartaric acid)).	NOAEL: 2440 mg/kg bw per day (as L-tartaric acid)	Group ADI: 24 mg/kg bw (Dipotassium L-tartrate and Metatartraric acid)	SF:100	-	2020/8/18	-
Madder color	-	Food Additives	Positive	• Atypical tubules • Increased in renal tubular adenoma • Vacuolar degeneration of cortical proximal tubular epithelium • Anisokaryosis of proximal tubular cells • Decrease food consumption • Increased serum creatinine	-	-	-	-	-	-	No ADI allocated.	-	Report https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20040618015&fileId=06001_003	2004/7/2	-
Magnesium hydrogen phosphate trihydrate	7782-75-4	Food Additives	Negative	• Soft stool or mild diarrhea • Diarrhea • Suppressed body weight gain	Oral (feed)	Repeated-dose toxicity study	90 days	Rat	No adverse effect observed below 3045 mg/kg bw per day (M), 3702 mg/kg bw per day (F).	NOAEL: 3045 mg/kg bw per day (M) 3702 mg/kg bw per day (F)	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2012/3/22	-
Magnesium hydroxide	1309-42-8	Food Additives	Negative	• Diarrhea • Nausea • Abdominal cramping	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2007/11/1	-
Magnesium silicate (synthetic)	1343-88-0	Food Additives	Negative	• Renal tubular lesions • Vacuolation of proximal tubular epithelium • Renal tubule necrosis • Inflammatory cell infiltration	Oral (gavage)	Repeated-dose toxicity study	28 days	Dog	• Renal tubule necrosis • Inflammatory cell infiltration	NOAEL: 300 mg/kg bw per day	ADI: 0.3 mg/kg bw	SF:1000 interspecies variation: 10 interindividual variation:10 short experimental period:10	-	2010/1/21	-
Magnesium stearate	557-04-0	Food Additives	Negative	-	-	-	-	-	(Due to the inadequate study design, NOAEL could not be derived. Attention should be paid that no adverse effect were observed in the highest dose group at a concentration of 5% .)	A NOAEL could not be derived from repeated dose toxicity study. Attention should be paid on the fact that no toxicological effect were observed in the highest dose group at a concentration of 5% .	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	Summary http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20160526042&fileId=202	2016/11/15	-
Metatartaric acid	56959-20-7, 39469-81-3	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	No adverse effect observed at highest level (2440 mg/kg bw per day (as L-tartaric acid)).	NOAEL: 2440 mg/kg bw per day (as L-tartaric acid)	ADI: 24 mg/kg bw (for Dipotassium L- Tartrate, Metatartaric acid and Calcium L-Tartrate / An ADI is expressed as L-tartaric acid)	SF:100	-	2022/1/26	-

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)								Reports			Remarks
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation		
					Route	Test	Duration	Species						Endpoint	
Monoammonium L-glutamate	7558-63-6 (as anhydrate)	Food Additives	Negative	No adverse effect observed.	-	-	-	-	Ammonium L-glutamate is expected to become L-glutamic acid in gastric juice and is thought to be absorbed through the same process as dietary free L-glutamic acid, L-glutamic acid as a proteolytic product, or salts such as sodium L-glutamate. Therefore, although the toxicity test results submitted for ammonium L-glutamate are not necessarily comprehensive, it was judged possible to make a comprehensive evaluation using the test results of L-glutamic acid and its salts, which are already approved for use in Japan. Ammonium L-glutamate, L-glutamic acid and its salts are considered not to be carcinogenic, reproductive toxicant, or genotoxic. In addition, repeated-dose toxicity studies showed no specific toxic effects that would raise safety concerns.	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2008/3/13	-
Monostarch phosphate	11120-02-8	Food Additives	Negative	No adverse effect observed.	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	2007/11/29	-
Natamycin, Pimaricin	7681-93-8	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Increased supernumerary sternal segment Nausea Vomiting Diarrhea 	Oral (unspecified)	Case report	13-334 days	Human	<ul style="list-style-type: none"> Nausea Vomiting Diarrhea 	NOAEL: 3 mg/kg bw per day (200 mg/person per day)	ADI: 0.3 mg/kg bw	SF:10	-	2005/5/6	-
Neotame	165450-17-9	Food Additives	Negative	<ul style="list-style-type: none"> Increased relative liver weight Increased liver weight increase in ALP Low body weight 	Oral (feed)	Two-generation reproductive activity study	-	Rat	F: Low body weight	NOAEL: 96.5 mg/kg bw per day	ADI: 1.0 mg/kg bw	SF:100	-	2006/10/19	-
Nisin	1414-45-5	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Low body weight Increase of Hb Increased MCH Increased MCHC 	Oral (feed)	Two-generation reproductive activity study	-	Rat	<ul style="list-style-type: none"> P: Suppressed body weight gain F: Low body weight 	NOAEL: 12.5 mg/kg bw per day	ADI: 0.13 mg/kg bw	SF:100	-	2008/1/31	-
Nitrous oxide, Dinitrogen monoxide, Hyponitrous acid anhydride	010024-97-2	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Repeated-dose toxicity study	28 days	Rat	No adverse effect observed at highest level (67.1 mg/kg bw per day).	NOAEL: 67.1 mg/kg bw per day	-	-	-	2004/12/9	-
Octanoic acid	124-07-2	Food Additives	Negative	<ul style="list-style-type: none"> Transient period of nausea, abdominal fullness 	Oral (feed)	Subacute toxicity study	91 days	Rat	No adverse effect observed at highest level (13200 mg/kg bw per day (as triacyl glycerol)).	NOAEL: 13200 mg/kg bw per day (as triacyl glycerol)	-	-	-	2017/4/18	-
Oxidized starch	65996-62-5	Food Additives	Negative	<ul style="list-style-type: none"> Slightly increased cecum weight 	-	-	-	-	-	-	-	-	-	2007/11/29	-
Pentylamine	110-58-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2018/5/29	-
Peracetic acid	79-21-0	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Reductions in drinking water Lower alkaline phosphatase activity Lung congestion Alveolar edema Espiratory distress 	Oral (gavage)	Subacute toxicity study	13 weeks	Rat	<ul style="list-style-type: none"> Lung congestion Alveolar edema Espiratory distress 	NOAEL: 0.25 mg/kg bw per day	-	-	-	2017/4/18	-
Peroxyoctanoic acid	33734-57-5	Food Additives	Negative	-	-	-	-	-	-	According to JECFA evaluation and the investigation in the US, concentration of peracetic acid in the additive is ten times as much as that of peroxyoctanoic acid. The FSCJ considered that actual intake of peroxyoctanoic acid is less than that of peracetic acid.	-	-	-	2017/4/18	-
Phenethylamine, Benzenethaneamine, 1-Amino-2-phenylethane, 2-Aminoethylbenzene	64-04-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2010/3/18	-
Phosphated distarch phosphate	11120-02-8	Food Additives	Negative	<ul style="list-style-type: none"> Increased cecum weight Suppressed body weight gain Renal calcium deposition Hyperplasia of renal pelvic epithelium 	-	-	-	-	-	-	-	-	-	2007/11/29	-
Piperidine	110-89-4	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	2010/5/20	-

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reports			Remarks		
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation			
					Route	Test	Duration	Species							Endpoint	Value
Polyoxyethylene (20) sorbitan monolaurate, Polysorbate 20	9005-64-5	Food Additives	Negative	· Diarrhea · Suppressed body weight gain	-	-	-	-	-	-	ADI: 10 mg/kg bw (as a group)	SF:100	Report https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20081030007&fileid=06_030007&fileid=001001_001	2007/6/7	-	
Polyoxyethylene (20) sorbitan tristearate, Polysorbate 65	9005-71-4	Food Additives	Negative	· Mild diarrhea	-	-	-	-	-	-	ADI: 10 mg/kg bw (as a group)	SF:100	Report https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20081030007&fileid=06_030007&fileid=001001_001	2007/6/7	-	
Polyoxyethylene (20) sorbitan monostearate, Polysorbate 60	9005-67-8	Food Additives	Negative	· Diarrhea · Suppressed body weight gain · Lower avoidance rate · Distention of the cecum	Oral (feed)	Repeated-dose toxicity study	13 weeks	Rat	· Diarrhea	NOAEL: 1,000 mg/kg bw per day	ADI: 10 mg/kg bw (as a group)	SF:100	Report https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20081030007&fileid=06_030007&fileid=001001_001	2007/6/7	-	
Polyoxyethylene (20) sorbitan monooleate, Polysorbate 80	9005-65-6	Food Additives	Negative	· Mild diarrhea · Hyperplasia of forestomach mucosa · Increased in adrenal medullary pheochromocytoma no significant difference	-	-	-	-	-	-	ADI: 10 mg/kg bw (as a group)	SF:100	Report https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20081030007&fileid=06_030007&fileid=001001_001	2007/6/7	-	
Polyvinylimidazole polyvinylpyrrolidone copolymers	87865-40-5	Food Additives	Negative	No adverse effect observed below 1000 mg/kg bw per day.	Oral (unspecified)	Repeated-dose toxicity study	28 days	Rat	No adverse effect observed at highest level (1000 mg/kg bw per day).	NOAEL: 1,000 mg/kg bw per day	No safety concern when used in accordance with "Standard for Use of Food Additives".	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20200218033&fileid=301	2020/12/8	Impurities 1. 1-vinyl-2-pyrrolidone (NVP) NOAEL: 7.5 mg/kg bw per day No safety concern was identified if PVI/PVP is appropriately used as food additive. 2. 1-vinyl imidazol (NVI) NOAEL: 5 mg/kg bw per day No safety concern was identified if PVI/PVP is appropriately used as food additive. 3. 2-pyrrolidone NOAEL: 190 mg/kg bw per day No safety concern was identified if PVI/PVP is appropriately used as food additive. 4. Imidazole NOAEL: 60 mg/kg bw per day No safety concern was identified if PVI/PVP is appropriately used as food additive.
Polyvinylpyrrolidone, Povidone	9003-39-8	Food Additives	Negative	· Allergenicity · Reduced body weight · Fluid stools	-	-	-	-	-	No toxicological sign detected.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	Summary https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20050621001&fileid=202	2013/7/30	Impurities 1. 1-vinyl-2-pyrrolidone (NVP) NOAEL: 7.5 mg/kg bw per day LOAEL: 40 mg/kg bw per day No safety concern was identified if this additive is appropriately used as food additive. It is difficult to assess carcinogenicity based on amount of intake of NVP contained in this additive. 2. Hydrazine BMDL ₁₀ : 0.57 mg/kg bw per day (as hydrazine) Consumption of hydrazine contained in this food additive does not pose safety concerns for consumers since the estimated risk level is smaller than one-in-a-million.	
Potassium alginate	9005-36-1	Food Additives	Negative	-	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the group ADI.	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20050328692&fileid=005	2006/3/30	-
Potassium ferrocyanide	13943-58-3	Food Additives	Negative	· Increase in the mean number of cells excreted in urine	Oral (feed)	Repeated-dose toxicity study	2 years or 49 weeks	Rat	· Increase in the mean number of cells excreted in urine	NOAEL: 5.3 mg/kg bw per day	No safety concern when used in accordance with "Standard for Use of Food Additives".	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20210526127&fileid=201	2022/2/24	-
Potassium hydrogen carbonate	298-14-6	Food Additives	Negative	-	-	-	-	-	-	The FSCJ concluded that part of the studies can be omitted since Potassium hydrogen carbonate becomes a common component of food after the additive is broken down in the gastro-intestinal tract. The FSCJ also concluded that, taken submitted repeated dose toxicity studies into account, no adverse effect is observed.	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20210330058&fileid=201	2021/10/5	-
Potassium lactate	996-31-6	Food Additives	Negative	· Metabolic acidosis · Low growth rate · Decrease in food consumption · Suppressed body weight gain · Decrease of average carbon dioxide content in plasma · Decrease of blood pH · Increase of blood lactic acid concentration · Stomachache · Vomiting · Diarrhea	Oral (drinking water)	Repeated-dose toxicity study	13 weeks	Rat	No adverse effect observed at highest level (1440 mg/kg bw per day (as lactic acid)).	NOAEL: 1440 mg/kg bw per day (as lactic acid)	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20070206002&fileid=201	2013/1/21	-
Potassium sulfate	7778-80-5	Food Additives	Negative	· Diarrhea · Increase in absolute / relative kidney weight	Oral (feed)	Repeated-dose toxicity study	13 weeks	Rat	· Diarrhea	NOAEL: 650 mg/kg bw per day (as sulfate ion)	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20110419011&fileid=201	2013/1/21	-
Propanol, Propyl alcohol	71-23-8	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachdfile/download?retrievevald=kya20031121108&fileid=06_001_002	2004/9/9	-

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reports			Remarks		
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation			
					Route	Test	Duration	Species							Endpoint	Value
Propiconazole	60207-90-1	Food Additives & Pesticides	Negative	<ul style="list-style-type: none"> Hepatocellular hypertrophy Hepatocyte vacuolization Hepatocellular necrosis Mucosal congestion in duodenum Hepatocellular adenoma Increased hepatocellular carcinoma Cleft palate Unossified sternebrae 	Oral (feed)	Chronic toxicity study	1 year	Dog	<ul style="list-style-type: none"> M : Mucosa congestion (stomach, duodenum, jejunum, ileum) F : Mucosal congestion in duodenum , Duodenal bleeding 	NOAEL: 1.9 mg/kg bw per day	ADI: 0.019 mg/kg bw	SF:100	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20161214160&fileId=201	2017/7/4	-
Propionaldehyde, Propanal	123-38-6	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20081121002&fileId=002	2009/4/2	-
Propylamine	107-10-8	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20171201129&fileId=204	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20171201129&fileId=202	2018/5/29	-
Paicose Epimerase expressed in <i>Escherichia coli</i> K-12 W3110 (pWKLP)	1618683-38-7 (as Paicose Epimerase)	Food Additives	Negative	No adverse effect observed.	Oral (feed)	Repeated-dose toxicity study	13 weeks	Rat	No adverse effect observed at highest level (1.02 g TOS/kg bw per day).	NOAEL: 1.02 g TOS/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181011111&fileId=202	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181011111&fileId=201	2019/3/26	-
Pyrazine	290-37-9	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20100816499&fileId=101	2011/1/6	-
Pyrimethanil (4,6-Dimethyl-N-phenyl-2-pyrimidinamine)	131341-86-1	Food Additives & Pesticides	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Hepatocellular hypertrophy Follicular cell hypertrophy Urinary bladder distension 	Oral (feed)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	<ul style="list-style-type: none"> Follicular cell hypertrophy 	NOAEL: 17 mg/kg bw per day	ADI: 0.17 mg/kg bw	SF:100	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2010043039&fileId=002	2012/6/7	-
Pyrrrole	109-97-7	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110104671&fileId=201	2011/3/31	-
Pyrrolidine	123-75-1	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2010040537&fileId=06001	2010/6/3	-
Saccharin calcium Hemiheptahydrate	6381-91-5 (as Calcium Saccharin hemiheptahydrate)	Food Additives	Negative	<ul style="list-style-type: none"> Increased proliferative activity of bladder epithelium (when sodium saccharin was administered) 	Oral (feed)	Two-generation reproductive and developmental toxicity study	-	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Reduction in litter size 	NOAEL: 500 mg/kg bw per day (as sodium saccharin (380 mg/kg bw per day as saccharin))	ADI: 3.8 mg/kg bw (as saccharin for calcium saccharin, sodium saccharin and saccharin)	SF:100	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20111129299&fileId=401	2011/12/15	-
Saccharin sodium	128-44-9 (Sodium saccharin anhydrate)	Food Additives	Negative	<ul style="list-style-type: none"> Increased proliferative activity of bladder epithelium (when sodium saccharin was administered) 	Oral (feed)	Two-generation reproductive and developmental toxicity study	-	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Reduction in litter size 	NOAEL: 500 mg/kg bw per day (as sodium saccharin (380 mg/kg bw per day as saccharin))	ADI: 3.8 mg/kg bw (as saccharin for calcium saccharin, sodium saccharin and saccharin)	SF:100	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20111129299&fileId=401	2011/12/15	-
Saccharin Sodium Dihydrate	6155-57-3 (as Sodium saccharin dihydrate)	Food Additives	Negative	<ul style="list-style-type: none"> Increased proliferative activity of bladder epithelium (when sodium saccharin was administered) 	Oral (feed)	Two-generation reproductive and developmental toxicity study	-	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Reduction in litter size 	NOAEL: 500 mg/kg bw per day (as sodium saccharin (380 mg/kg bw per day as saccharin))	ADI: 3.8 mg/kg bw (as saccharin for calcium saccharin, sodium saccharin and saccharin)	SF:100	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20111129299&fileId=401	2011/12/15	-
sec-Butylamine	13952-84-6	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20171201129&fileId=204	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20171201129&fileId=202	2018/5/29	-
Sodium chlorite	7758-19-2	Food Additives	Negative	<ul style="list-style-type: none"> Oxidative stress associated with changes in erythrocytes Tumor formation A lower a lower average birth to weaning growth rate Decrease in pup weaning weight Decrease in amplitude of auditory startle response 	Oral (drinking water)	Two-generation reproductive activity study	-	Rat	<ul style="list-style-type: none"> Decrease in amplitude of auditory startle response 	NOAEL: 2.9 mg/kg bw per day (as chlorite ion)	ADI: 0.029 mg/kg bw	SF:100	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20150812420&fileId=501	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20150812420&fileId=201	2015/12/22	-
Sodium chlorite	7758-19-2	Food Additives	Negative	<ul style="list-style-type: none"> Pathological changes in thyroid gland Decrease in erythrocyte count, Hb, Ht Decreased absolute / relative adrenal gland weight 	Oral (drinking water)	Combined chronic toxicity / carcinogenicity study	2 years	Rat	<ul style="list-style-type: none"> Increase in follicular cell hypertrophy 	LOAEL: 4 mg/kg bw per day (as chlorate ion)	No safety concern if sodium chlorite is used appropriately as an additive since there is enough margin between its estimated daily intake and the LOAEL.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20150812420&fileId=501	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20150812420&fileId=201	2015/12/22	-
Sodium selenite pentahydrate	26970-82-1	Food Additives	Negative	<ul style="list-style-type: none"> Pathological changes in hair and nail 	-	Case report	-	Human	<ul style="list-style-type: none"> Pathological changes in hair and nail 	The Upper level of intake for infants of 0 month to 2 years old: 5.9 µg/kg bw per day (as selenium)	The Upper level of intake for infants of 0 month to 2 years old: 5.9 µg/kg bw per day (as selenium)	SF:1	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2015106466&fileId=502	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2015106466&fileId=201	2015/11/17	-

Substance	CAS No	Category	Genotoxicity	Chronic toxicity (Subchronic toxicity)							Reports			Remarks		
				Toxicological findings	Point of Departure				Reference value	SF/UF	English	Japanese	Date of evaluation			
					Route	Test	Duration	Species							Endpoint	Value
Sodium stearoyl lactylate, Sodium stearoyl-2-lactylate	25383-99-7	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Increased relative liver weight 	Oral (feed)	Repeated-dose toxicity study	1 month	Rat	<ul style="list-style-type: none"> Suppressed body weight gain Increased relative liver weight 	NOAEL: 2000 mg/kg bw per day	ADI: 20 mg/kg bw	SF:100	-	http://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20070206001&fileId=002	2008/7/10	-
Starch acetate	9045-28-7	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Diarrhea Increased cecum, colon weight Hypercalciuria Thickening of bladder epithelium Calcium deposition in renal pelvis 	-	-	-	-	-	-	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20081030002&fileId=06_001_001	2007/11/29	-
Starch sodium octenyl succinate	66829-29-6	Food Additives	Negative	<ul style="list-style-type: none"> Increased kidney, liver, cecum weight Calcium deposition in corticomedullary junction 	Oral (feed)	Subacute toxicity study	6 weeks	Dog	Suppressed body weight gain	NOEL: 6 g/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20081030002&fileId=06_001_001	2007/11/29	-
Sunflower lecithin	8002-43-5	Food Additives	Negative	-	Oral (gavage)	Repeated-dose toxicity study	28 days	Rat	No adverse effect observed at highest level (1000 mg/kg bw per day).	NOAEL: 1000 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20120402448&fileId=201	2013/7/30	-
trans-2-Pentenal, (E)-Pent-2-enal	1576-87-0	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20101029601&fileId=201	2011/12/1	-
Triethyl citrate	77-93-0	Food Additives	Negative	-	Oral (feed)	Repeated-dose toxicity study	2 years	Rat	-	NOAEL: 2000 mg/kg bw per day	No safety concern when used appropriately as an additive. It is not necessary to specify the ADI.	-	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110426024&fileId=501	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110426024&fileId=201	2015/2/17	-
Trimethylamine, N,N-Dimethylmethanamine	75-50-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20091130001&fileId=021	2010/7/29	-
Valeraldehyde	110-62-3	Food Additives (Flavoring)	Negative	-	-	-	-	-	-	-	No safety concern at current levels of intake when used as a flavoring.	-	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20081030005&fileId=06_001_001	2008/3/27	-
Zinc gluconate	4468-02-4	Food Additives	Negative	<ul style="list-style-type: none"> Decrease in SOD activity in red blood cells 	Oral (unspecified)	Intervention study	6 weeks	Human	<ul style="list-style-type: none"> Decrease in SOD activity in red blood cells 	LOAEL: 0.94 mg/kg bw per day (as zinc)	An upper limit for intake of zinc gluconate for both patients and non-patients: 0.63 mg/kg bw per day (as zinc)	UF:1.5	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20140417133&fileId=202	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20140417133&fileId=201	2015/1/13	-
Zinc sulfate	7446-20-0	Food Additives	Negative	<ul style="list-style-type: none"> Suppressed body weight gain Decrease in food intake Necrosis of pancreatic acinar cells Swelling of pancreatic acinar cells Reduced the antioxidant activity of erythrocyte superoxide dismutase (E-SOD) Decrease of Hb Decreased in neutrophil Reduction in serum-iron/copper Decrease of ceruloplasmin Decrease in HDL cholesterol Headache Nausea Vomiting 	Oral (unspecified)	Intervention study	6 weeks	Human	<ul style="list-style-type: none"> Reduced the antioxidant activity of erythrocyte superoxide dismutase (E-SOD) 	LOAEL: 0.94 mg/kg bw per day (as zinc)	UL: 0.64 mg/kg bw/day(as zinc)	UF:1.5	Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20150121262&fileId=510	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20150121262&fileId=201	2015/9/15	-
β-apo-8'-Carotenal	1107-26-2	Food Additives	Negative	<ul style="list-style-type: none"> Orange coloured skin Exhibited minimal eosinophilic droplet formation in the tubular epithelial cells of the outer renal cortices 	Oral (feed)	Repeated-dose toxicity study	90 days and 4 weeks recovery period	Rat	<ul style="list-style-type: none"> Exhibited minimal eosinophilic droplet formation in the tubular epithelial cells of the outer renal cortices 	LOAEL: 10 mg/kg bw per day	ADI: 0.05 mg/kg bw/day	SF:200 interspecies variation:10 interindividual variation:10 LOAEL is used to estimate the ADI:2	-	https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110419009&fileId=201	2013/11/25	-