

| Substance | CAS No | Residue definitions (for estimation of dietary intake) | Category | Use | Chemical Class | Mechanism of Action | Genotoxicity | Data for setting ADI | | | | | | Data for setting ARD | | | | | | Reports | | | Remarks | | | | | |
|-----------|---------------------|--|--|--|--------------------------|---------------------|--|------------------------|---|---------------|---|---------|----------|---|------------------------------|-----------------------|---|----------------|---|----------|--|------------------------------|------------------|--|--|---|------------|--|
| | | | | | | | | Toxicological findings | Point of Departure | | | | | Reference value | SF | Point of Departure | | | | | ARD | SF | | English | Japanese | Date of latest evaluation | | |
| | | | | | | | | | Route | Test | Duration | Species | Endpoint | | | Value | Route | Test | Species | Endpoint | | | | | | | Value | |
| 1 | 1,3-dichloropropene | 542-75-6 | Agricultural products : 1,3-dichloropropene (Parent compound only) | Pesticides | Insecticide (Nematicide) | — | Inhibition of enzyme activity by binding to the nucleophilic reactive group of the enzyme. | Negative | Stomach(Squamous epithelial hyperkeratosis/hyperplasia : Forestomach), Urinary bladder(Hyperplasia of transitional epithelium) , Blood(Anemia) / Increased incidence of hepatocellular adenomas and squamous epithelial papilloma of forestomach : Rat, Increased incidence of bronchiolo-alveolar adenoma, squamous epithelial papilloma of forestomach and transitional epithelial carcinoma of urinary bladder : Mouse | Oral (gavage) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | hyperplasia/hyperkeratosis of forestomach squamous epithelium | NOAEL: 2 mg/kg bw per day | ADI: 0.02 mg/kg bw | SF:100 | Oral (gavage) | Subacute toxicity study | Dog | Increased incidence of Vomiting | NOAEL: 20 mg/kg bw per day | 0.2 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190905055&fileId=210 | 2019/10/15 | |
| 2 | Acephate | 30560-19-1 | Agricultural and livestock products : Acephate , Methamidophos | Pesticides | Insecticide | Organophosphorus | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%), Blood(Anemia), Nasal cavity(Degeneration / Regeneration of olfactory epithelium) / Tumorigenesis of nasal cavity : Rat, Increased incidence of liver tumor : Female mouse / Decreased number of implantation : Rat | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of brain and erythrocyte ChE activity(more than 20%) | NOAEL: 0.24 mg/kg bw per day | ADI: 0.0024 mg/kg bw | SF:100 | Oral (capsule) | Single-dose toxicity study | Human | No adverse effect observed at highest level (1 mg/kg bw) | NOAEL: 1 mg/kg bw | 0.1 mg/kg bw | SF:10 | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20160209496&fileId=202 | 2016/12/13 | |
| 3 | Acetamiprid | 135410-20-7 | · Agricultural products : Acetamiprid (Parent compound only) · Livestock products : Acetamiprid , N ¹ -[(6-chloro-3-pyridyl)methyl]-N ² -cyanoacetamide | Pesticides | Insecticide | Neonicotinoid | Acting as an agonist at the nicotinic acetylcholine receptor, affecting the synapses. | Negative | Suppressed body weight gain, Hepatocellular hypertrophy | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Hepatocellular hypertrophy : Male | NOAEL: 7.1 mg/kg bw per day | ADI: 0.071 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Decreased locomotor activity : Male | NOAEL: 10 mg/kg bw | 0.1 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20140702188&fileId=201 | 2014/12/16 | |
| 4 | Benfuracarb | 82560-54-1 | · Agricultural products : Benfuracarb, Carbofuran and 3-hydroxy-carbofuran (including conjugated form) · Fishery products : Benfuracarb and Carbofuran | Pesticides | Insecticide | Carbamate | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of erythrocyte and brain ChE activity(more than 20%), Suppressed body weight gain / Decrease in survival rate : Rat offspring | Oral (feed) | Subacute toxicity study | 90 days | Dog | Thymic involution | NOAEL: 0.89 mg/kg bw per day | ADI: 0.0089 mg/kg bw | SF:100 | Oral (feed) | Subacute neurotoxicity study | Rat | Inhibition of erythrocyte ChE activity(more than 20%) | LOAEL: 1.84 mg/kg bw per day | 0.0092 mg/kg bw | SF:200 interspecies variation:10 interindividual variation:10 LOAEL is used to estimate the ADI:2 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20110210006&fileId=211 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20110210006&fileId=211 | 2020/2/4 | For Carbofuran, the ADI and ARD was set at 0.00015 mg/kg bw. |
| 5 | Buprofezin | 953030-84-7 | Agricultural, livestock and fishery products : Buprofezin (Parent compound only) | Pesticides | Insecticide | Thiadiazine | Inhibition of chitin synthesis. | Negative | Suppressed body weight gain, Liver(Increased organ weights, Hepatocellular hypertrophy), Thyroid(Increased organ weights, Hypertrophy of follicular epithelial cell) | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Hypertrophy and hyperplasia of follicular epithelial cell in thyroid | NOAEL: 0.9 mg/kg bw per day | ADI: 0.009 mg/kg bw | SF:100 | Oral (capsule) | Subacute toxicity study | Dog | Sedation and Slight ataxic gait | NOAEL: 50 mg/kg bw per day | 0.5 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190319052&fileId=210 | 2019/6/18 | |
| 6 | Carbaryl | 63-25-2 | Agricultural and livestock products : Carbaryl (Parent compound only) | Pesticides & Veterinary Medicinal Products | Insecticide | Carbamate | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of ChE activity(more than 20%), Liver(Centrilobular hepatocellular hypertrophy), Kidney(Hyperplasia of pelvic transitional epithelium), Urinary bladder(Hyperplasia of transitional epithelium : Rat, Protein like intracytoplasmic droplets in the transitional epithelium : Mouse) , Thyroid(Hypertrophy of follicular cell : Rat), Blood(Anemia : Mouse) | Oral (feed) | Carcinogenicity study | 2 years | Mouse | Vascular tumors(Hemangiosarcomas) | LOAEL: 14.7 mg/kg bw per day | ADI: 0.0073 mg/kg bw | SF:2000 interspecies variation:10 interindividual variation:10 Carcinogenic LOAEL is used to estimate the ADI:20 | Oral (gavage) | Acute - Subacute - Developmental neurotoxicity study, ChE inhibitor study | Rat | Inhibition of brain and erythrocyte ChE activity(more than 20%) | NOAEL: 1 mg/kg bw per day | 0.01 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20120918650&fileId=211 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20120918650&fileId=211 | 2018/9/4 | |
| 7 | Carbofuran | 1563-66-2 | Agricultural and livestock products : Carbofuran and 3-hydroxy-carbofuran (including conjugated form) | Pesticides | Insecticide | Carbamate | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of erythrocyte and brain ChE activity(more than 20%), Suppressed body weight gain / Increased the number of stillborn infant, Reduced survival rate of offspring, Developmental delay : Rat | Oral (gavage) | ChE inhibitor study | Single | Rat | Inhibition of brain ChE activity(more than 20%) : Juvenile rat(11 postnatal days) | LOAEL: 0.03 mg/kg bw | ADI: 0.00015 mg/kg bw | SF:200 interspecies variation:10 interindividual variation:10 LOAEL is used to estimate the ADI:2 | Oral (gavage) | ChE inhibitor study | Rat | Inhibition of brain ChE activity(more than 20%) : Juvenile and Mature rat, Inhibition of liver AChE activity : Maternal, Inhibition of whole blood AChE activity : Fetus | LOAEL: 0.03 mg/kg bw | 0.00015 mg/kg bw | SF:200 interspecies variation:10 interindividual variation:10 LOAEL is used to estimate the ADI:2 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20090209005&fileId=211 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20090209005&fileId=211 | 2020/2/4 | |
| 8 | Carbosulfan | 55285-14-8 | · Agricultural and livestock products : Carbosulfan, Carbofuran and 3-hydroxy-carbofuran (including conjugated form of either) · Fishery products : Carbosulfan, Carbofuran | Pesticides | Insecticide | Carbamate | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of erythrocyte and brain ChE activity(more than 20%), Suppressed body weight gain, Eye(Iris atrophy, Retinal degeneration : Rat) / Reduced number of newborn offspring, Decrease in survival rate at four postnatal days : Rat | Oral (gavage) | Acute neurotoxicity study | Single | Rat | Inhibition of erythrocyte and brain ChE activity(more than 20%) | NOAEL: 0.5 mg/kg bw | ADI: 0.005 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Inhibition of erythrocyte and brain ChE activity(more than 20%) | NOAEL: 0.5 mg/kg bw | 0.005 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20110210005&fileId=211 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20110210005&fileId=211 | 2020/2/4 | |

| No. | Substance | CAS No | Residue definitions (for estimation of dietary intake) | Category | Use | Chemical Class | Mechanism of Action | Genotoxicity | Data for setting ADI | | | | | | Data for setting ARD | | | | | Reports | | | Remarks | | | | | | | | | | |
|---------------|--|---|--|--|-----------------------------------|------------------------|---|--------------|--|--------------------|---|-----------|---------|--|--|---|--------------------|--------------------|------------------------------|---------|--|--|--|----------------|---|---|---|---|--------|---|---|----------|---|
| | | | | | | | | | Toxicological findings | Point of Departure | | | | | Reference value | SF | Point of Departure | | | | | ARD | | SF | English | Japanese | Date of latest evaluation | | | | | | |
| | | | | | | | | | | Route | Test | Duration | Species | Endpoint | | | Value | Route | Test | Species | Endpoint | | | | | | | Value | | | | | |
| 9 | Cartap hydrochloride, Thiocyclam hydrogen oxalate, Bensultap Ⅷ 1 | 15263-52-2(as Cartap hydrochloride), 31895-22-4(as Thiocyclam hydrogen oxalate), 17606-31-4(as Bensultap) | Agricultural products : Cartap hydrochloride, Cartap, Thiocyclam hydrogen oxalate, Thiocyclam, Bensultap, Nereistoxin(including metabolites that are composed to Nereistoxin by hydrolysis/oxidation under alkaline condition) | Pesticides | Insecticide | Nereistoxin | Inhibition of acetylcholinesterase activity. | Negative | Suppressed body weight gain, Tremor, Convulsion, Blood(Anemia), Liver(Increased organ weights, Centrilobular hepatocellular hypertrophy) / Increased incidence of testicular interstitial cell tumors : Rat | Oral (feed) | Two-generation reproductive activity study | — | Rat | Suppressed body weight gain | NOAEL: 2.52 mg/kg bw per day (as Bensultap) / 1.6 mg/kg bw per day (as Cartap hydrochloride) | ADI: 0.016 mg/kg bw (as group ADI for Cartap hydrochloride, Thiocyclam hydrogen oxalate, Bensultap) | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Decreased length of hindlimb's stride : Female | NOAEL: 10 mg/kg bw (as Cartap hydrochloride) | 0.1 mg/kg bw (as group ARD for Cartap hydrochloride, Thiocyclam hydrogen oxalate, Bensultap) | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | 2019/6/4 | | | | | | |
| 9-1 | BensultapⅧ 1 | 17606-31-4 | Agricultural products : Bensultap, Nereistoxin | Pesticides | Insecticide | Nereistoxin | Inhibition of acetylcholinesterase activity. | Negative | Suppressed body weight gain, Tremor, Blood(Anemia), Liver(Increased organ weights, Centrilobular hepatocellular hypertrophy) / Increased incidence of testicular interstitial cell tumors : Rat | Oral (feed) | Two-generation reproductive activity study | — | Rat | Suppressed body weight gain | NOAEL: 2.52 mg/kg bw per day | ADI: 0.025 mg/kg bw | SF:100 | Oral (gavage) | Pharmacological study | Mouse | Tremor | NOEL: 30 mg/kg bw | | 0.3 mg/kg bw | | | | | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | 2019/6/4 | Evaluated as a group of Bensultap, Cartap hydrochloride and Thiocyclam hydrogen oxalate. Please see #9. |
| 9-2 | Cartap hydrochloride Ⅷ 1 | 15263-52-2 | Agricultural products : Cartap hydrochloride, Cartap, Nereistoxin(including metabolites that are composed to Nereistoxin by hydrolysis/oxidation under alkaline condition) | Pesticides | Insecticide | Nereistoxin | Inhibition of acetylcholinesterase activity. | Negative | Suppressed body weight gain, Tremor | Oral (gavage) | Chronic toxicity study | 2 years | Monkey | Suppressed body weight gain | NOAEL: 3 mg/kg bw per day | ADI: 0.03 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Decreased length of hindlimb's stride : Female | NOAEL: 10 mg/kg bw | | 0.1 mg/kg bw | | | | | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | 2019/6/4 | Evaluated as a group of Bensultap, Cartap hydrochloride and Thiocyclam hydrogen oxalate. Please see #9. |
| 9-3 | Thiocyclam hydrogen oxalate Ⅷ 1 | 31895-22-4 | Agricultural products : Thiocyclam hydrogen oxalate, Thiocyclam, Nereistoxin | Pesticides | Insecticide | Nereistoxin | Inhibition of acetylcholinesterase activity. | Negative | Suppressed body weight gain, Convulsion | Oral (feed) | Chronic toxicity study | 2 years | Dog | Salivation | NOAEL: 2.11 mg/kg bw per day | ADI: 0.021 mg/kg bw | SF:100 | Oral (gavage) | Developmental toxicity study | Rabbit | Decreased body weight | NOAEL: 10 mg/kg bw per day | 0.1 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181210142&fileId=211 | 2019/6/4 | Evaluated as a group of Bensultap, Cartap hydrochloride and Thiocyclam hydrogen oxalate. Please see #9. | | | | | |
| 10 | Chlorantraniliprole | 500008-45-7 | Agricultural, livestock and fishery products : Chlorantraniliprole (Parent compound only) | Pesticides | Insecticide | Anthranilic acid amide | Activating calcium release channels of ryanodine-sensitive intracellular. | Negative | Liver(Centrilobular hepatocellular hypertrophy, Altered hepatocellular foci) | Oral (feed) | Carcinogenicity study | 18 months | Mouse | Centrilobular hepatocellular hypertrophy and Altered hepatocellular foci : Male | NOAEL: 158 mg/kg bw per day | ADI: 1.5 mg/kg bw | SF:100 | — | — | — | — | — | FSCI concluded that it was not necessary to establish an ARD, in view of the absence of adverse effect that would be elicited by a single oral dose. | Not Applicable | — | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20181114140&fileId=201 | 2017/4/18 | | | | | |
| 11 | Chloropicrin (Trichloronitromethane) | 76-06-2(as trichloronitromethane) | Agricultural products : Chloropicrin (Parent compound only) | Pesticides | Fungicide, Insecticide, Herbicide | — | Inhibition of SH-enzymes. | Negative | Forestomach(hyperplasia/hyperkeratosis of mucosal), Blood(Anemia) / Increased incidence of bronchiolo-alveolar adenoma, bronchiolo-alveolar adenocarcinoma and harderian gland adenoma : Mouse, Increased incidence of squamous epithelium papilloma and papillary carcinoma of forestomach : Female mouse | Oral (capsule) | Chronic toxicity study | 1 year | Dog | Vomiting | NOAEL: 0.1 mg/kg bw per day | ADI: 0.001 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Reduced motor activity : Male, Decreased locomotor activity : Female | NOAEL: 50 mg/kg bw | 0.5 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170615051&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170615051&fileId=211 | 2021/1/12 | The English report is the first edition published on December 25, 2014 | | | | | |
| 12 | Chlorpyrifos | 2921-88-2 | Agricultural, livestock and fishery products : Chlorpyrifos (Parent compound only) | Pesticides | Insecticide | Organophosphorus | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%) | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of erythrocyte ChE activity(more than 20%) : Male, Inhibition of brain ChE activity(more than 20%) : Female | NOAEL: 0.1 mg/kg bw per day | ADI: 0.001 mg/kg bw | SF:100 | Oral (unspecified) | Single-dose toxicity study | Human | Inhibition of erythrocyte AChE activity(more than 20%) | NOAEL: 1 mg/kg bw | 0.1 mg/kg bw | SF:10 | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170721083&fileId=210 | 2018/7/24 | | | | | | |
| Oral (feed) | Two-generation reproductive activity study | — | Rat | Inhibition of erythrocyte ChE activity(more than 20%) : Parent | NOAEL: 0.1 mg/kg bw per day | SF:100 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oral (gavage) | Developmental toxicity study | 6-15 days pregnant | Mouse | Inhibition of erythrocyte ChE activity(more than 20%) : Maternal | NOAEL: 0.1 mg/kg bw per day | SF:100 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oral (feed) | Chronic toxicity study | 1 year / 2 years | Dog | Inhibition of erythrocyte ChE activity(more than 20%) | NOAEL: 0.1 mg/kg bw per day | SF:100 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Clothianidin | 210880-92-5 | Agricultural and livestock products : Clothianidin (Parent compound only) | Pesticides | Insecticide | Neonicotinoid | Acting as an agonist at the nicotinic acetylcholine receptor, affecting the synapses. | Negative | Suppressed body weight gain | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Hyperplasia of ovarian interstitial gland : Female | NOAEL: 9.7 mg/kg bw per day | ADI: 0.097 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | No adverse effect observed at highest level (60 mg/kg bw) | NOAEL: 60 mg/kg bw | 0.6 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20140407127&fileId=201 | 2014/10/7 | | | | | | |
| 14 | Cyanophos (CYAP) | 2636-26-2 | Agricultural products : Cyanophos (Parent compound only) | Pesticides | Insecticide | Organophosphorus | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%) | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of brain ChE activity(more than 20%) | NOAEL: 0.101 mg/kg bw per day | ADI: 0.001 mg/kg bw | SF:100 | Oral (gavage) | ChE inhibitor study | Rat | Inhibition of erythrocyte ChE activity(more than 20%) | NOAEL: 1 mg/kg bw | 0.01 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170315209&fileId=202 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20170315209&fileId=202 | 2017/10/17 | | | | | | |

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|------|---|--|--|--|---|-----------------|---|--------------|---|--------------------|---|------------------|---------|---|-------------------------------|--|--------------------|----------------|--|----------------|--|--|---|---|---|---|---|--|---|
| | | | | | | | | | Toxicological findings | Point of Departure | | | | | Reference value | SF | Point of Departure | | | | | ARD | SF | | English | Japanese | Date of latest evaluation | | |
| | | | | | | | | | | Route | Test | Duration | Species | Endpoint | | | Value | Route | Test | Species | Endpoint | | | | | | | Value | |
| 15 | Dazomet, Metam (Metam-ammonium, Metam-sodium, Metam-potassium), Methyl isothiocyanate (MITC) ※2 | 533-74-4(as Dazomet), 39680-90-5(as Metam-ammonium), 137-42-8(as Metam-sodium), 137-41-7(as Metam-potassium), 556-61-6(as Methyl isothiocyanate) | Agricultural products : Methyl isothiocyanate | Pesticides | Nematicide, Fungicide, Insecticide, Herbicide | Dithiocarbamate | Inhibition of SH-enzymes. | Negative | Suppressed body weight gain, Liver(Increased organ weights, hepatocellular fatty change), Forestomach(Thickening) | Oral (gavage) | Subacute and Chronic toxicity study | 90 days / 1 year | Dog | Hepatocellular vacuolation and Periportal hepatocellular fatty change(Subacute toxicity study) / Increased absolute/relative liver weight(Chronic toxicity study) | NOAEL: 0.4 mg/kg bw per day | ADI: 0.004 mg/kg bw (as group ADI for Dazomet, Metam, Methyl isothiocyanate) | SF:100 | Oral (gavage) | Pharmacological study | Mouse / Rabbit | Increased responsiveness and reflex, Hypersensitivity : Male mouse / Hypothermia, Abnormal posture, Hyperpnea : Male rabbit | NOAEL: 10 mg/kg bw | 0.1 mg/kg bw (as group ARD for Dazomet, Metam, Methyl isothiocyanate) | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190523009&fileId=210 | 2019/8/27 | |
| 15-1 | Dazomet ※2 | 533-74-4 | Agricultural products : Methyl isothiocyanate | Pesticides | Nematicide, Fungicide, Insecticide, Herbicide | Dithiocarbamate | Inhibition of SH-enzymes. | Negative | Suppressed body weight gain, Blood(Anemia), Liver(Increased organ weights), Spleen(Hemosiderin deposition) / Increased postimplantation loss rate, Decreased the number of viable fetuses | Oral (feed) | Chronic toxicity study | 1 year | Dog | Hemosiderin deposition in liver : Female | NOAEL: 0.4 mg/kg bw per day | ADI: 0.004 mg/kg bw | SF:100 | Oral (feed) | Subacute toxicity study | Dog | Suppressed body weight gain | NOAEL: 2.8 mg/kg bw per day | 0.028 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190523009&fileId=210 | 2019/8/27 | Evaluated as a group of Dazomet, Metam and Methyl isothiocyanate. Please see #15. |
| 15-2 | Metam (Metam-ammonium) ※2 | 39680-90-5(as Metam-ammonium) | Agricultural products : Methyl isothiocyanate | Pesticides | Fumigant | Dithiocarbamate | Inhibition of SH-enzymes. | Negative | Suppressed body weight gain, Stomach(Hyperkeratosis : Forestomach, Hyperplasia of mucosal epithelium : Glandular stomach) / Decreased the number of viable fetuses, Increased the number of stillborn infant : Rat | Oral (capsule) | Chronic toxicity study | 1 year | Dog | Vomiting, Salivation | NOAEL: 0.5 mg/kg bw per day | ADI: 0.005 mg/kg bw | SF:100 | Oral (capsule) | Chronic toxicity study | Dog | Vomiting | NOAEL: 3 mg/kg bw per day | 0.03 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190523009&fileId=210 | 2019/8/27 | Evaluated as a group of Dazomet, Metam and Methyl isothiocyanate. Please see #15. |
| 15-3 | Metam (Metam-sodium, Metam-potassium) ※2 | 137-42-8 (as Metam-sodium), 137-41-7 (as Metam-potassium) | Agricultural products : Methyl isothiocyanate | Pesticides | Fumigant | Dithiocarbamate | Inhibition of SH-enzymes. | Negative | Suppressed body weight gain, Blood(Anemia), Stomach(Hyperplasia of mucosal epithelium : Forestomach), Urinary bladder(Hyperplasia of mucosal epithelium) / Meningocele : Rat and rabbit fetus | Oral (gavage) | Chronic toxicity study | 1 year | Dog | Increased ALP : Male | NOAEL: 0.75 mg/kg bw per day | ADI: 0.0075 mg/kg bw | SF:100 | Oral (gavage) | Developmental toxicity study | Rat / Rabbit | Suppressed body weight gain : Maternal | NOAEL: 2.16 mg/kg bw per day | 0.021 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190523009&fileId=210 | 2019/8/27 | Evaluated as a group of Dazomet, Metam and Methyl isothiocyanate. Please see #15. |
| 15-4 | Methyl isothiocyanate (MITC) ※2 | 556-61-6 | Agricultural products : Methyl isothiocyanate | Pesticides | Nematicide, Fungicide, Insecticide, Herbicide | Dithiocarbamate | Inhibition of SH-enzymes. | Negative | Suppressed body weight gain, Liver(Increased organ weights, hepatocellular fatty change), Forestomach(Thickening) | Oral (gavage) | Subacute and Chronic toxicity study | 90 days / 1 year | Dog | Hepatocellular vacuolation and Periportal hepatocellular fatty change(Subacute toxicity study) / Increased absolute/relative liver weight(Chronic toxicity study) | NOAEL: 0.4 mg/kg bw per day | ADI: 0.004 mg/kg bw | SF:100 | Oral (gavage) | Pharmacological study | Mouse / Rabbit | Increased responsiveness and reflex, Hypersensitivity : Male mouse / Hypothermia, Abnormal posture and Hyperpnea : Male rabbit | NOAEL: 10 mg/kg bw | 0.1 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20190523009&fileId=210 | 2019/8/27 | Evaluated as a group of Dazomet, Metam and Methyl isothiocyanate. Please see #15. |
| 16 | Diazinon | 333-41-5 | Agricultural, livestock and fishery products : Diazinon (Parent compound only) | Pesticides & Veterinary Medicinal Products | Insecticide | Organophorus | Inhibition of cholinesterase activity. | Negative | Inhibition of erythrocyte and brain AChE activity(more than 20%), Neurological symptoms / Decreased copulation index and fertility rate : Rat | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of erythrocyte AChE activity(more than 20%) | NOAEL: 0.1 mg/kg bw per day | ADI: 0.001 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Inhibition of erythrocyte and brain AChE activity(more than 20%) | NOAEL: 2.5 mg/kg bw | 0.025 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20130312069&fileId=401 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20170524032&fileId=210 | 2017/12/12 | The English report is the first edition published on August 19, 2014 | |
| 17 | Dinotefuran | 165252-70-0 | Agricultural and livestock products : Dinotefuran (Parent compound only) | Pesticides & Veterinary Medicinal Products | Insecticide | Neonicotinoid | Acting as an agonist at the nicotinic acetylcholine receptor, affecting the synapses. | Negative | Suppressed body weight gain | Oral (feed) | Chronic toxicity study | 1 year | Dog | Suppressed body weight gain : Female | NOAEL: 22 mg/kg bw per day | ADI: 0.22 mg/kg bw | SF:100 | Oral (gavage) | Developmental toxicity study | Rabbit | Reduced motor activity and Tremor : Maternal | NOAEL: 125 mg/kg bw per day | 1.2 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20160713077&fileId=201 | 2017/2/14 | |
| 18 | Etofenprox | 80844-07-1 | Agricultural, livestock and fishery products : Etofenprox (Parent compound only) | Pesticides | Insecticide | Pyrethroid | Disturbance of sodium release channels of nervous systems. | Negative | Liver(Hepatocellular hypertrophy), Kidney(Tubular basophilia changes), Thyroid(Increased incidence of microfollicles : Rat), Blood(Anemia : Mouse) / Thyroid follicular cell adenomas : Female rat | Oral (feed) | Carcinogenicity study | 2 years | Mouse | Tubular basophilia changes | NOAEL: 3.1 mg/kg bw per day | ADI: 0.031 mg/kg bw | SF:100 | Oral (gavage) | Developmental toxicity study | Rabbit | Decreased body weight and feed intake : Maternal | NOAEL: 100 mg/kg bw per day | 1 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20210825173&fileId=210 | 2021/11/16 | |
| 19 | Fenitrothion | 122-14-5 | Agricultural, livestock and fishery products : Fenitrothion (Parent compound only) | Pesticides & Veterinary Medicinal Products | Insecticide | Organophorus | Inhibition of cholinesterase activity. | Negative | Inhibition of ChE activity(more than 20%) | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of erythrocyte and brain ChE activity(more than 20%) | NOAEL: 0.49 mg/kg bw per day | ADI: 0.0049 mg/kg bw | SF:100 | Oral (capsule) | Repeated-dose (4 days) toxicity study | Human | No adverse effect observed at highest level (0.36 mg/kg bw per day) | NOAEL: 0.36 mg/kg bw per day | 0.036 mg/kg bw | SF:10 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20100927561&fileId=401 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20170125167&fileId=201 | 2017/8/22 | The English report is the first edition published on June 3, 2014 | |
| 20 | Fipronil | 120068-37-3 | · Agricultural products : Fipronil (Parent compound only) · Livestock products : Fipronil, Fipronilsulfenyl | Pesticides & Veterinary Medicinal Products | Insecticide | Phenylpyrazole | Acting interference with the passage of chloride ions through the gammaaminobutyric acid (GABA)-regulated chloride ion channel. | Negative | Central nervous system(Convulsion), Liver(Increased organ weights), Thyroid(Increased organ weights : Rat) / Increased follicular-cell adenomas of the thyroid gland : Rat / Reduction in the fertility index : Rat | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Decreased Ht | NOAEL: 0.019 mg/kg bw per day | ADI: 0.00019 mg/kg bw | SF:100 | Oral (capsule) | Subacute toxicity study | Dog | Anorexia | NOAEL: 2 mg/kg bw per day | 0.02 mg/kg bw | SF:100 | — | — | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20151013447&fileId=201 | 2016/4/5 | |
| 21 | Flubendiamide | 272451-65-7 | Agricultural and livestock products : Flubendiamide (Parent compound only) | Pesticides | Insecticide | Iodophthalimide | Activating calcium release channels of ryanodine-sensitive intracellular. | Negative | Liver(Hepatocellular hypertrophy, hepatocellular fatty change), Thyroid(Hypertrophy of follicular epithelial cell), Eye(Enlargement of eyeballs : Rat) | Oral (feed) | Carcinogenicity study | 2 years | Rat | Fatty changes in centrilobular hepatocytes | NOAEL: 1.7 mg/kg bw per day | ADI: 0.017 mg/kg bw | SF:100 | Oral (feed) | Comprehensive evaluation of one- and twogeneration reproductive toxicity studies and developmental neurotoxicity study | Rat | Synechia, Haemorrhage, Iritis and Cataract : Offspring | NOAEL: 15 mg/kg bw per day | 0.15 mg/kg bw (for women during lactation) | SF:100 | Summary https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20160713073&fileId=202 | https://www.fsc.go.jp/fscis/attachdFile/download?retrievalId=kya20181212146&fileId=210 | 2019/2/5 | The English report is the 5th edition published on July 18, 2017 | |
| | | | | | | | | | | | | | | | | | | Oral (feed) | | | | 0.15 mg/kg bw (for women during lactation) | — | Not Applicable (for general population) | — | | | | |

| Substance | CAS No | Residue definitions (for estimation of dietary intake) | Category | Use | Chemical Class | Mechanism of Action | Genotoxicity | Data for setting ADI | | | | | | Data for setting ARD | | | | | Reports | | | Remarks | | | | | | |
|-----------|---------------|--|---|------------|------------------------|-----------------------|--|------------------------|---|---------------|--|-----------|----------|--|-------------------------------|-----------------------|--------|--------------------|------------------------------|----------|--|------------------------------|---|---------|---|---|------------|--|
| | | | | | | | | Toxicological findings | Point of Departure | | | | | Reference value | SF | Point of Departure | | | | | ARD | | SF | English | Japanese | Date of latest evaluation | | |
| | | | | | | | | | Route | Test | Duration | Species | Endpoint | | | Value | Route | Test | Species | Endpoint | | | | | | | Value | |
| 22 | Fosthiazate | 98886-44-3 | Agricultural products : Fosthiazate (Parent compound only) | Pesticides | Insecticide | Organophosphoramidate | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of erythrocyte and brain ChE activity(more than 20%), Adrenal(Cytoplasmic vacuolation of the adrenocortical zone fasciculata), Blood(Anemia) / Disturbance of estrous cyclicity, Prolonged period for mating, Prolonged gestational period : Rat | Oral (feed) | AChE inhibitor study | 104 weeks | Rat | Inhibition of erythrocyte AChE activity(more than 20%) | NOAEL: 0.205 mg/kg bw per day | ADI: 0.002 mg/kg bw | SF:100 | Oral (gavage) | ChE inhibitor study | Rat | Inhibition of erythrocyte ChE activity(more than 20%) : Offspring of 11 and 21 postnatal days and Young adult | NOAEL: 0.7 mg/kg bw | 0.007 mg/kg bw (for general population) | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2022-211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2022-0323041&fileId=210 | 2022/5/18 | The English report is the first edition published on December 15, 2020 |
| 23 | Imicyafos | 140163-89-9 | Agricultural products : Imicyafos (Parent compound only) | Pesticides | Nematicide | Organophosphorus | Inhibition of cholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%), Blood(Anemia) / Increase of maternal animal that all littermate died : Rat | Oral (gavage) | Chronic toxicity study | 1 year | Dog | Increase in myelopoiesis | NOAEL: 0.05 mg/kg bw per day | ADI: 0.0005 mg/kg bw | SF:100 | Oral (gavage) | ChE inhibitor study | Rat | Inhibition of erythrocyte ChE activity(more than 20%) | NOAEL: 1 mg/kg bw | 0.01 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2015-0805415&fileId=201 | 2015/12/22 | |
| 24 | Imidacloprid | 138261-41-3 | Agricultural products : Imidacloprid (Parent compound only) Livestock products : Imidacloprid, Metabolites containing 6-chloropyridyl groups | Pesticides | Insecticide | Neonicotinoid | Acting as an agonist at the nicotinic acetylcholine receptor, affecting the synapses. | Negative | Tremor, Suppressed body weight gain / Tremor, Decreased motor and locomotor activity : Rat | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Increased mineralization in the colloid of thyroid gland follicles | NOAEL: 5.7 mg/kg bw per day | ADI: 0.057 mg/kg bw | SF:100 | Oral (gavage) | Pharmacological study | Mouse | Reduced alertness and motor activity, Ataxia | NOAEL: 10 mg/kg bw | 0.1 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2015-1117469&fileId=201 | 2016/7/12 | |
| 25 | Isoxathion | 18854-01-8 | Agricultural and fishery products : Isoxathion (Parent compound only) | Pesticides | Insecticide | Organophosphorus | Inhibition of cholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%) | Oral (feed) | Chronic toxicity study | 2 years | Dog | Inhibition of erythrocyte ChE activity(more than 20%) | NOAEL: 0.2 mg/kg bw per day | ADI: 0.002 mg/kg bw | SF:100 | Oral (unspecified) | ChE inhibitor study | Human | No adverse effect observed at highest level (0.03 mg/kg bw per day) | NOAEL: 0.03 mg/kg bw per day | 0.003 mg/kg bw | SF:10 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110613080&fileId=202 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110613080&fileId=202 | 2016/2/23 | |
| 26 | Malathion | 121-75-5 | Agricultural and livestock products : Malathion (Parent compound only) | Pesticides | Insecticide | Organophosphorus | Inhibition of cholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%) / Increased incidence of hepatocellular adenomas : Mouse | Oral (feed) | Chronic toxicity study and Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of erythrocyte AChE activity(more than 20%) | NOAEL: 29 mg/kg bw per day | ADI: 0.29 mg/kg bw | SF:100 | Oral (capsule) | Single-dose toxicity study | Human | No adverse effect observed at highest level (15 mg/kg bw) | NOAEL: 15 mg/kg bw | 1.5 mg/kg bw | SF:10 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110425002&fileId=202 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20110425002&fileId=202 | 2014/5/13 | |
| 27 | Methamidophos | 10265-92-6 | Agricultural and livestock products : Methamidophos (Parent compound only) | Pesticides | Insecticide, Acaricide | Organophosphorus | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%) / Reduction in the birth rate : Rat | Oral (feed) | Chronic toxicity study | 1 year | Dog | Inhibition of brain and erythrocyte ChE activity(more than 20%) | NOAEL: 0.056 mg/kg bw per day | ADI: 0.00056 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Inhibition of erythrocyte ChE activity(more than 20%) : Male, Inhibition of brain and erythrocyte ChE activity(more than 20%) : Female | NOAEL: 0.3 mg/kg bw | 0.003 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2015-0209501&fileId=201 | 2016/12/13 | |
| 28 | Prothiofos | 34643-46-4 | Agricultural products : Prothiofos (Parent compound only) | Pesticides | Insecticide | Organophosphorus | Inhibition of acetylcholinesterase activity. | Negative | Inhibition of brain and erythrocyte ChE activity(more than 20%), Tremor, Suppressed body weight gain / Increased incidences of open eyelid, bent ribs and femoral dysplasia : Rabbit | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Inhibition of erythrocyte ChE activity(more than 20%) | NOAEL: 0.27 mg/kg bw per day | ADI: 0.0027 mg/kg bw | SF:100 | Oral (gavage) | Acute neurotoxicity study | Rat | Inhibition of erythrocyte ChE activity(more than 20%) | NOAEL: 5 mg/kg bw | 0.05 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20130612178&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20130612178&fileId=211 | 2018/10/23 | |
| 29 | Thiamethoxam | 153719-23-4 | Agricultural and livestock products : Thiamethoxam (Parent compound only) | Pesticides | Insecticide | Neonicotinoid | Acting as an agonist at the nicotinic acetylcholine receptor, affecting the synapses. | Negative | Kidney (hyaline droplet accumulation in renal tubule), Liver (inflammatory cell infiltration, hepatocellular hypertrophy) / Increase in hepatocellular adenomas and carcinomas : Mouse | Oral (feed) | Two-generation reproductive activity study | — | Rat | Hyaline droplet accumulation in renal tubule : Male | NOAEL: 1.84 mg/kg bw per day | ADI: 0.018 mg/kg bw | SF:100 | Oral (gavage) | Developmental toxicity study | Rabbit | Decreased body weight and feed intake : Maternal | NOAEL: 50 mg/kg bw per day | 0.5 mg/kg bw | SF:100 | — | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya2015-0113250&fileId=201 | 2015/7/28 | |
| 30 | Tolfenpyrad | 129558-76-5 | Agricultural products : Tolfenpyrad (Parent compound only) | Pesticides | Insecticide | Pyrazole | Inhibition of complex I of the respiratory electron transport chain in the mitochondria. | Negative | Liver(Hepatocellular hypertrophy), Kidney(Hypertrophy of the proximal renal tubular epithelium) / Prolonged gestation period : Rat | Oral (feed) | Combined chronic toxicity / carcinogenicity study | 2 years | Rat | Increased relative liver and kidney weight : Male | NOAEL: 0.56 mg/kg bw per day | ADI: 0.0056 mg/kg bw | SF:100 | Oral (gavage) | Developmental toxicity study | Rat | Suppressed body weight gain and Decreased feed intake : Maternal | NOAEL: 1 mg/kg bw per day | 0.01 mg/kg bw | SF:100 | Summary https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20200728097&fileId=211 | https://www.fsc.go.jp/fscis/attachedFile/download?retrieveId=kya20200728097&fileId=211 | 2020/11/24 | |

※ 1 : as a group of Bensultap, Cartap hydrochloride and Thiocyclam hydrogen oxalate

※ 2 : as a group for Dazomet, Metam and Methyl isothiocyanate