

RECOMMENDED USAGE RESTRICTIONS FOR PLANT PROTECTION PRODUCTS ON SOUTHERN AFRICAN EXPORT CITRUS

Compiled by:

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The purpose of these restrictions is to ensure compliance with residue tolerances in the countries to which southern African citrus is exported. The recommendations on container labels are based on the **current registrations** of plant protection products. In terms of the SA Act 36 of 1947 (and equivalent legislation in neighbouring countries) the registration requirements must be adhered to at all times. However, the requirements of importing countries have made it necessary to introduce **further restrictions** in order to comply with maximum residue limits (MRLs).

The active ingredients of the products are listed alphabetically together with an illustrative brand name. In the case of commodity products which may be sold under different brand names, only a single name is shown for convenience. This does not imply endorsement of the particular brand concerned.

Due to the multiple fruit set pattern of lemons, plant protection products may only be used as specified during the first spring **blossoming and fruit set** period. Special caution should be exercised to ensure that pesticides applied to protect later sets do not result in unacceptable residues in fruit remaining on the trees from earlier sets.

The following general statements are applicable to the use of plant protection products on all cultivars:

- * Growers should ensure that these restrictions are kept handy and are consulted before the application of plant protection products.
- * The application in accordance with current label requirements will in many instances not ensure that export requirements will be met. The restrictions specified are applicable in addition to the label requirements.
- * The withholding periods specified on product labels provide an indication of the ability of treatments to conform to South African residue levels. Since overseas requirements are generally more stringent and these withholding periods are not adequate unless specifically mentioned in this document.
- * These restrictions apply to the period during which fruit is present on trees (between blossom and harvest) and not to the period between harvest and the onset of blossom, during which time standard label requirements apply.
- * All usages apply to normal blossom situations. Under conditions where blossoming occurs over an extended period, a more conservative approach must be adopted. Under these conditions treatments should be timed according to the early portion of the blossom.
- * Particular attention must be given to ensuring that spray machinery is calibrated to apply the correct spray volumes in relation to tree size and that spray operators are trained in the handling and application of plant protection products.
- * All treatments referred to above must be applied at the registered concentrations.
- * Alternation of products, where applicable with reference to the restrictions, will reduce the risk of excessive residues of any one chemical and will also reduce selection pressure for resistance.
- * The additional restrictions in this document do not necessarily provide an indication of the compatibility of the products with integrated pest management and good agricultural practice.
- * The addition of oil to a treatment, if not registered as such, should be avoided as this may increase the residue level.

All exporting growers should keep accurate spray records so that in the event of exceeding MRLs the reasons can be determined. These records should be retained in safe-keeping for at least 3 years.

Growers are strongly urged to abide by these restrictions to minimise the risk of residue tolerances being exceeded. However, it must be noted that no absolute guarantee can be given that even by following these guidelines export residue tolerances will in all instances not be exceeded. The efficacy and integrated pest management compatibility of plant protection products listed here are additional considerations that users should bear in mind and which are not covered in this document whatsoever. This document has been compiled with information presently available and in good faith, but with the express condition that the authors, Citrus Research International and Citrus Growers' Association of Southern Africa, accept no responsibility whatsoever for any loss or damage resulting directly or indirectly from the use thereof.

SUMMARY TABLE OF RECOMMENDED USAGE RESTRICTIONS

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Acephate/ Protectostem	70d PHI	-	40d PHI as registered	-	-	-	Korea: 40d PHI as registered
Acetamiprid/ Mospilan	150d PHI as registered	-	-	-	-	-	Korea: 150d PHI as registered (Not later than 90% petal fall) ^{s1} . Taiwan: 150d PHI as registered for oranges and not later than 90% petal fall for other citrus
Acrinathrin/ Rufast	Not later than 90% petal fall	-	-	-	-	-	-
Amitraz/ Mitac	Not later than 90% petal fall	-	-	150d PHI	-	28d PHI as registered	-
Avermectin/ Agrimec	7d PHI as registered	-	-	-	-	-	-
Azadirachtin	See Pyrethrins	-	-	-	-	-	-
Azinphos-methyl/ Gusathion	Not later than 90% petal fall	120d PHI	120d PHI	21d PHI as registered	-	-	Korea: 21d PHI for soft citrus and 120d PHI for oranges, grapefruit and lemons. GSO: 120d PHI
Azoxystrobin/ Ortiva	Pre-harvest: 77d PHI as registered on grapefruit, oranges and soft citrus, and 14d as registered on lemons. Post-harvest: Post-harvest as registered.	-	-	-	-	-	China: Pre-harvest: 77d PHI as registered on grapefruit, oranges and soft citrus, and 14d as registered on lemons. Post-harvest: Not permitted
<i>Bacillus thuringiensis</i> / Dipel	0d PHI as registered	-	-	-	-	-	-
<i>Beauveria bassiana</i> / BroadBand	0d PHI as registered	-	-	-	-	-	-
Bromopropylate/ Acarol	Not later than 90% petal fall	21d PHI	21d PHI	21d PHI	-	21d PHI	GSO: 21d PHI
Buprofezin/ Applaud	Not later than mid- October for oranges and grapefruit and not later than 90% petal fall for lemons and soft citrus	45d PHI as registered	45d PHI as registered	45d PHI as registered	45d PHI as registered	45d PHI as registered	45d PHI as registered. South Korea: Not later than mid-October for grapefruit and 45d PHI as registered for other citrus (Not later than 90% petal fall for other citrus ^{s1})
Cadusaphos/ Rugby	0d PHI as registered	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Carbendazim (Bavistin, Bendazid, Knowin, Benomyl, Spotless)	120d PHI for oranges and grapefruit and 90d PHI for other citrus	90d PHI for oranges and not later than 90% petal fall for other citrus	14d PHI as registered	14d PHI as registered	Not later than 90% petal fall	14d PHI as registered	Korea: Not later than 90% petal fall for oranges, grapefruit and mandarins, and 120d PHI as registered for lemons. GSO: 90d PHI for oranges and 14d PHI as registered for other citrus. Thailand: Not later than 90% petal fall for other citrus. China: 14d PHI as registered for oranges and soft citrus and 90d PHI for lemons and grapefruit
Chlorfenapyr/ Hunter	Medium cover spray: Before calyx closure (\pm 3 weeks after petal fall) as registered. Bait spray application (30ml): Not later than mid-December and a 140d PHI as registered	-	-	-	-	-	-
Chlorpyrifos/ Dursban	Not later than 90% petal fall for sprays, 0d PHI for soil and stem applications as registered.	60d PHI for sprays as registered, 0d PHI for soil and stem applications as registered	60d PHI for sprays as registered, 0d PHI for soil and stem applications as registered	60d PHI for sprays as registered, 0d PHI for soil and stem applications as registered	-	60d PHI for sprays as registered, 0d PHI for soil and stem applications as registered	China, GSO, India, South Korea, Taiwan, Switzerland, Singapore, Vietnam: 60d PHI for sprays as registered, 0d PHI for soil and stem applications as registered. Thailand: Not later than 90% petal fall
Chlorantraniliprole (Rynaxypyr)/ Coragen	7d PHI as registered	-	-	-	-	7d PHI as registered. Not later than 90% petal fall for mandarins.	Norway: see note g.
Clothianidin/ Dantop	120d PHI as registered	-	-	-	-	-	-
Copper	14d PHI as registered	-	-	-	-	-	-
Cyantraniliprole / Exirel	7d PHI as registered for foliar applications and 1d PHI as registered for bait sprays	-	-	-	-	-	Taiwan: Not later than 90% petal fall
Cyhexatin (Azocyclotin)/ Sipcatin	Only to be used after harvest and before the onset of blossom	-	-	-	Not permitted	Not permitted	Taiwan and Thailand: Not permitted

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Cypermethrin	28d PHI as registered	-	-	-	28d PHI as registered for alpha and zeta-Cypermethrin formulations. Not later than 90% petal fall for Cypermethrin ^c	-	-
Dichlorprop-p/ Corasil P	90d PHI as registered	-	-	-	-	-	-
Dichlorvos/ Devipan	21d PHI	-	-	-	7d PHI as registered	-	-
Dicofol/ Kelthane	Not later than 90% petal fall	-	14d PHI Russia: Not later than 90% petal fall.	-	-	14d PHI	Korea: Not later than 90% petal fall for soft citrus and 28d PHI for other citrus. Taiwan: 28d PHI
Difenoconazole/ Score	Not later than 90% petal fall as registered	-	-	-	-	-	-
Dimethoate/ Rogor	Not later than 50% petal fall for sprays, Not later than white bud stage for soil applications	-	-	42d PHI as registered	42d PHI as registered	42d PHI as registered	GSO: 42d PHI as registered
Dimethyl Didecylammonium Chloride/ Sporekill	Post-harvest: not permitted. Pre-harvest: 160d PHI	-	Pre-harvest and post-harvest as registered	-	-	Post-harvest: not permitted. Pre-harvest: 160d PHI ^{k-}	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Dithiocarbamates (Mancozeb/Maneb)	21d PHI or 28d PHI as registered	Not later than 90% petal fall for Lemons and Grapefruit and 21d or 28d PHI as registered for Soft Citrus and Oranges	-	Not later than end December and only where packhouses have either a non-recycling high pressure spray or non-recycling Deccosol foam curtain and regular (twice daily) cleaning of brushes	Not later than 90% petal fall for Oranges, Lemons and Grapefruit and 21d or 28d PHI as registered for Soft Citrus	Not later than end-January	Korea: 21d PHI or 28d PHI as registered for soft citrus and lemons. Not later than end December and only where packhouses have either a non-recycling high pressure spray or non-recycling Deccosol foam curtain and regular (twice daily) cleaning of brushes for grapefruit and oranges. India: Not later than end December and only where packhouses have either a non-recycling high pressure spray or non-recycling Deccosol foam curtain and regular (twice daily) cleaning of brushes
(E)-8-Dodecen-1-yl acetate + (Z)-8-Dodecen-1-yl acetate/ Checkmate	0d PHI as registered	-	-	-	-	-	-
Emamectin Benzoate/ Warlock	14d PHI as registered	-	-	-	-	-	-
Endosulfan/ Thiodan ^h	Not permitted in SA ^h . Not later than 90% petal fall in other southern African countries	- ^h	28d PHI ^h	- ^h	- ^h	28d PHI ^h	- ^h
Ethephon/ Ethrel	Not permitted	-	As registered	As registered	-	Post-harvest use not permitted	-
Ethoprophos/ MOCAP	0d PHI as registered	-	-	-	-	-	-
Etoxazole/ Smite	28d PHI as registered	-	-	-	-	-	-
Fenamiphos/ Nema-cur	150d PHI as registered	-	-	-	-	-	-
Fenazaquin	56d PHI as registered	-	-	-	-	-	-
Fenbutatin-oxide/ Torque	Not later than 90% petal fall	7d PHI as registered	7d PHI as registered	7d PHI as registered	7d PHI as registered	7d PHI as registered	7d PHI as registered. South Korea: Not later than 90% petal fall
Fenpropathrin/ Meothrin	28d PHI as registered ^f	-	-	-	-	-	

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Fenpropathrin + Phenthoate/ Meothrin + Elsan	Not later than 90% petal fall	-	-	-	-	-	-
Fenpyroximate/ Mitigate	28d PHI as registered	-	-	-	-	-	-
Fipronil/ Regent	Before calyx closure (\pm 3 weeks after petal fall) as registered	-	-	-	-	-	Taiwan: Not later than 90% petal fall
Fluopyram / Velum	120 d PHI as registered	-	-	-	-	-	-
Flutriafol/ Impact	Not later than 90% petal fall as registered	Not later than 90% petal fall	-	-	Not later than 90% petal fall	Not later than 90% petal fall	Korea and Taiwan: Not later than 90% petal fall
Formetanate/ Dicarzol	90d PHI as registered	-	-	-	-	-	-
Fosetyl-Al/Aliette	25d or 0d PHI as registered	-	-	-	-	-	-
Fludioxonil/ Teacher	Post-harvest as registered	-	-	-	-	-	Taiwan: ^{T1}
Fosthiazate/ Nemathorin	43d PHI as registered	-	-	-	-	-	-
Furfural/ Crop Guard	43d PHI as registered	-	-	-	-	-	-
Gibberellic Acid	15d PHI as registered	-	-	-	-	-	-
Granulovirus (Cryptogran, Cryptex)	0d PHI as registered	-	-	-	-	-	-
Guazatine	Not Permitted	Post-harvest as registered	Post-harvest as registered	-	-	-	GSO: Post-harvest as registered
Helicoverpa armigera nucleopolyhedrovirus/ Helicovir	0d PHI as registered	-	-	-	-	-	-
Imazalil (Chloramizol)	Post-harvest as registered	-	-	-	-	-	-
Imidacloprid/ Confidor	212d PHI as registered (Not to be used on bearing trees for EU fruit in the market from July 2022) ^{EU3}	212d PHI as registered	212d PHI as registered	212d PHI as registered	212d PHI as registered	212d PHI as registered for oranges, grapefruit and lemons, and not later than 90% petal fall for soft citrus	UK: 212d PHI as registered. Taiwan: 212d PHI as registered for oranges and not later than 90% petal fall for other citrus
Iprodione/ Rovral (Dicarboxamil)	Not later than 90% petal fall	-	115d PHI as registered	-	-	-	GSO, Switzerland and Taiwan: Not later than 90% petal fall Korea: 115d PHI as registered for soft citrus and lemons and not later than 90% petal fall for other citrus
Isazophos/ Miral	56d PHI as registered	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Kresoxim-methyl/ Stroby	56d PHI for grapefruit & oranges. Not later than 90% petal fall for lemons & soft citrus	-	56d PHI	56d PHI for soft citrus, and not later than 90% petal fall for other citrus	Not later than 90% petal fall	56d PHI	Not later than 90% petal fall
Mercaptothion/ Malathion (fruit fly baiting only)	Only dilute concentration, do not use higher concentrations. 7d PHI	-	-	14d PHI	-	-	Korea: 7d PHI for oranges and 28d PHI for other citrus. Thailand: 7d PHI for oranges, 14d PHI for grapefruit and 28d PHI for other citrus. Switzerland: 28d PHI
Metalaxyl M/ Ridomil Gold	30d PHI as registered	-	-	-	-	-	-
Methamidophos/ Citrimet	60d PHI	-	21d PHI as registered	21d PHI as registered	-	-	Korea: 21d PHI as registered
Methidathion/ Ultracide	Not later than 90% petal fall	56d PHI as registered for mandarins and not later than 90% petal fall for other citrus	56d PHI as registered for mandarins and not later than 90% petal fall for other citrus	56d PHI as registered	-	56d PHI as registered	Korea: Not later than 90% petal fall for oranges, grapefruit & lemons and 56d PHI as registered for soft citrus. GSO: 56d PHI as registered
Methiocarb/ Mesurol	Not later than the end of January	-	-	-	-	-	Korea: 21d PHI as registered for mandarins and not later than the end of January for others. Taiwan: Not later than 90% petal fall. GSO: Not later than the end of January
Methomyl (Thiodicarb) / Lannate	60d PHI for all registered usages	28d PHI for all registered usages	28d PHI for all registered usages	28d PHI for all registered usages	28d PHI for all registered usages	28d PHI for all registered usages	GSO: 28d PHI for all registered usages
Methoxyfenozide / Runner	30d PHI as registered	-	-	-	-	-	-
Methyl-parathion / Pennacap	Not later than 50% petal fall	-	-	-	-	-	-
Mevinphos	28d PHI	-	3d PHI as registered	3d PHI as registered	-	-	Korea: 3d PHI as registered
Orange Oil/ Pre-vam	0d PHI as registered	-	-	-	-	-	-
Omethoate/ Folimat	Apply no more than once in a season, not later than beginning of December and ensure at least a 150d PHI	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Paecilomyces lilacinus/ PL+	0d PHI as registered	-	-	-	-	-	-
Parathion/ Parathion	Not later than 50% petal fall	-	-	-	-	Not later than 4 weeks after petal fall	-
Permethrin/ Last Call	0d PHI as registered	-	-	-	-	-	-
Phenthoate/ Elsan	Not later than 50% petal fall	-	-	-	-	-	-
Phosphorous acid	0d PHI, 14d PHI or 28d PHI as registered	-	-	-	-	-	-
Pirimicarb/ Aphox	14d PHI as registered	-	-	Not later than 90% petal fall	Not later than 90% petal fall	14d PHI as registered for oranges and not later than 90% petal fall for other citrus	Switzerland, Singapore, Vietnam: Not later than 90% petal fall. South Korea: Not later than 90%
Prochloraz	Not permitted	Post-harvest as registered	Post-harvest as registered	-	-	-	-
Profenofos/ Selecron	Between blossom and harvest, use Selecron only once and not more than 100mℓ/100ℓ water at not later than 50% petal fall ^Y	-	-	-	-	-	-
Propiconazole / Propicure	Not permitted	Post-harvest as registered	Post-harvest as registered	Post-harvest as registered	Post-harvest as registered	Post-harvest as registered	Not permitted for Hong Kong, India, Vietnam, GSO countries. Taiwan: Post-harvest as registered for oranges, lemons and grapefruit and not permitted on Mandarins
Prothiofos/ Tokuthion	Between blossom and harvest, Prothiofos should be used only once and not later than 90% petal fall	-	-	-	-	-	-
Pymetrozine/ Chess	Not later than 90% petal fall	-	-	42d PHI as registered for Oranges, Soft Citrus and Lemons, and not later than 90% petal for Grapefruit	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Pyraclostrobin/ Cabrio	45d PHI as registered	-	-	-	-	-	Taiwan: Not later than 90% petal fall for Soft citrus and 45d PHI as registered for other citrus
Pyrethrin (incl natural Pyrethrum) / Erador	2d PHI as registered	Not later than 90% petal fall	Not later than 90% petal fall	2d PHI as registered for oranges and not later than 90% petal fall for other citrus	2d PHI as registered for oranges and not later than 90% petal fall for other citrus	-	China and Taiwan: Not later than 90% petal fall
Pyrimethanil / Philabuster	Post-harvest as registered. Do not use in HOT water bath.	Post-harvest as registered. Do not use in HOT water bath and not recommended for wax application.	-	-	-	-	Korea and Taiwan: Post-harvest as registered. Do not use in HOT water bath and not recommended for wax application
Pyriproxyfen/ Nemesis	90d PHI as registered	-	-	-	-	-	Switzerland: 120d PHI Taiwan: 90d PHI as registered for oranges and soft citrus and not later than 90% petal fall for other citrus. South Korea: Not later than 90% petal fall
Sodium ortho-phenyl-phenol	Post-harvest as registered	-	-	-	-	-	Taiwan: Not permitted on Soft Citrus. South Korea: Not permitted
Spinetoram/ Delegate	14d PHI for grapefruit and lemons and 7d PHI as registered of other citrus	7d PHI as registered for oranges and soft citrus and 14d PHI for other citrus	-	7d PHI as registered	7d PHI as registered	7d PHI as registered	7d PHI as registered
Spinosad/ (Tracer/GF120)	1d PHI as registered for fruit fly baiting (GF120), but 28d PHI for other applications (Tracer)	-	-	-	-	-	-
Spirodiclofen/ Envidor	14d PHI as registered	-	-	-	-	-	-
Spirotetramat/ Movento	60d PHI as registered	-	-	-	-	-	-
Sulfoxaflor (Isoclast) / Closer	21d PHI as registered	-	-	-	-	-	-
Sulphur	0d PHI as registered	-	-	-	-	-	-
Tartar emetic/ Tartox	30d PHI as registered	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Tau-fluvalinate/ Klartan	Not later than mid-November as registered	-	-	-	-	-	-
Tebuconazole/ Folicur	Not later than 90% petal fall as registered	-	-	-	-	-	-
Temephos/ Abate	200d PHI	-	-	-	-	-	-
Terbufos/ (AC92-100, Counter)	30d PHI as registered and not to be used between December and 1 April	-	-	-	-	-	-
Tetradifon/ Tedion	Not later than 90% petal fall	-	15d PHI	15d PHI	Not Permitted	15d PHI	Switzerland: Not later than 90% petal fall. Korea: 15d PHI for soft citrus and not later than 90%
Thiabendazole	Post-harvest as registered	-	-	-	-	-	-
Thiacloprid/ Calypso	No later than 3 weeks after petal-fall	-	-	-	-	-	-
Thiophanate-methyl/ Topsin	Not later than 90% petal fall	-	14d PHI as registered	14d PHI as registered	Not later than 90% petal fall	14d PHI as registered	-
Trichlorfon/ Dipterox	28d PHI as registered	-	10d PHI as registered	-	-	-	Korea: 10d PHI as registered for Soft Citrus and 28d PHI for other citrus
Trifloxystrobin/ Flint	76d PHI as registered	-	-	-	-	-	Taiwan: Not later than 90% petal fall for soft citrus and 76d PHI as registered for other citrus
Triflumuron/ Alsystin	Not later than 90% petal fall	-	30d PHI as registered	60d PHI	Not permitted	-	-
Uniconazole/ Tips Plus	135d PHI as registered	-	-	-	-	-	-
2,4-D	Post-harvest: Not more than 250ppm in a packhouse treatment and not more than 250ppm in a pre-degreening drench. Pre-harvest: 7d PHI as registered	-	-	-	-	Pre-harvest as registered	Korea: Not permitted on oranges, soft citrus and grapefruit. China: °
3,5,6 TPA / Maxim	120d PHI as registered	-	-	-	-	-	-

PHI = Pre-harvest interval. - = as for "all markets", that is no additional restrictions apply.

SUMMARY TABLE OF RESIDUE TOLERANCES

Chemical	RSA	General export tolerance	Codex	Canada	USA	Japan	Korea
Acephate	0.2	0.01	None	0.1	None	None	5.0 ¹³
Acetamiprid	0.5	0.5	1.0	0.5	1.0	2.0	0.5
Acrinathrin	None ⁿ	0.02	None	0.1	None	0.01	1.0 ¹³
Amitraz	0.2	0.05	0.5 ⁷	0.1	None	0.5, 0.9 ⁷	0.5 ⁷ , 0.2 ^{13, 19, 20}
Avermectin	0.01	0.01	0.02	0.02	0.02	0.1	0.02 ¹³
Azadirachtin	None	0.01	None	0.1	Exempt	Exempt	None
Azinphos-methyl	2.0	0.01	1.0	2.0	None	0.01	1.0, 2.0 ¹³
Azoxystrobin	0.5 (10.0 ⁿ)	10.0	15.0	15.0	15.0	10.0	10.0
<i>Bacillus thuringiensis</i>	None	None	None	None	None	None	None
Bromopropylate	3.0 ⁿ	0.01	2.0	2.0	None	2.0	0.01
Buprofezin	0.05	0.01	1.0	0.1 ^{19,20} , 4.0	4.0	2.0 ⁷ , 1.0 ¹³ , 3.0 ¹¹	2.5 ^{7,20} , 0.3 ¹³
Cadusafos	0.05	0.01	None	0.1	None	0.01	None
Carbendazim	5.0	0.2 ^{7,19} , 0.7 ^{13,20}	1.0 ⁷	10.0	None	7.0 ^{19,20} , 3.0 ¹¹	0.01 ^{7, 19, 13} , 0.7 ²⁰
Chinomethionat	0.5	0.01	None	0.1	None	0.7	0.5
Chlorfenapyr	0.01	0.01	0.8 ²⁰ , 1.5 ⁷	0.1	0.01	2.0, 0.3 ¹³	1.0 ¹³ , 0.7 ⁷ , 1.0 ^{6, 20}
Chlorantraniliprole	0.5	0.5 (0.01) ^g	0.7	0.7	1.4	0.7	1.0 ¹³ 0.6 ⁶
Chlorpyrifos	0.3	0.01	1.0	1.0	0.01	1.0	1.0
Clothianidin	0.01	0.01	0.07	0.1	0.07 ^{US1}	2.0	1.0 ¹³ , 0.3 ^{7, 20}
Copper	20.0	20.0	None	50.0	Exempt	Exempt	None
Cyantraniliprole	1.0 ⁿ	0.9	0.7	0.7	0.7	0.7	0.7
Cyhexatin (Azocytotin)	2.0	0.01, 0.2 ⁷	0.2 ⁷	0.1	Not permitted	Not permitted	2.0, 1.0 ¹³
Cypermethrin	0.2	0.2	0.3	1.0	None, 0.35, 0.5 ¹⁹ , 0.3 ⁷ , 2.0 ^c	2.0	0.3
Dichlorprop	0.3 ⁿ	0.3	None	0.1	None	0.2	0.01
Dichlorvos	0.1	0.01	None	0.1	None	0.2	0.2 ¹³
Dicofol	5.0	0.02	None	0.1	None	5.0	1.0 ⁶
Difenoconazole	0.05	0.05	0.6	0.8	0.6	0.6	0.6 ⁶ , 1.0 ¹³
Dimethoate	2.0	0.01	5.0	1.5	2.0	2.0	2.0
Dimethyl Didecyl ammonium Chloride	6.0	0.1	None	0.1	Exempt	Not permitted ^k	None
Dithiocarbamate	3.0	3.0	2.0 ⁷ , 10.0 ¹³	0.1	None ¹¹ , 10.0 ¹³	2.0 ¹¹ , 10.0 ¹³	5.0 ^{13, 20} , 0.01 ^{7, 19}
(E)-8-Dodecen-1-yl acetate + (Z)-8-Dodecen-1-yl acetate	None	None	None	None	Exempt	None	None
Emamectin Benzoate	0.01	0.01	None	None	None	None	0.05 ^{7, 13, 20}
Endosulfan ^h	0.05	0.05	None	0.1	None	0.5	0.1 ^{19, 20} , None ^{7, 13}
Ethephon	2.0	0.05	None	1.0	None	2.0	None
Ethoprophos	0.05	0.01	None	0.1	None	0.005	None
Etoxazole	0.2	0.1	0.1	0.1	0.1 ⁶	0.7, 0.5 ¹³	0.5 ¹³
Fenamiphos	0.05	0.02	None	0.1	None	0.2	0.5 ⁶
Fenazaquin	0.05	0.05	None	0.1	0.4	0.01	0.4
Fenbutatin-oxide (Hexakis)	1.0	0.01	5.0	2.0	20.0	5.0	5.0
Fenpropathrin	0.5	0.5 ^f	2.0	2.0	2.0	5.0	2.0
Fenproximate	0.2	0.2	0.6	1.0	1.0	1.0	0.7
Fipronil	0.05	0.005	None	0.1	None	0.01	0.05 ¹³

Chemical	RSA	General export tolerance	Codex	Canada	USA	Japan	Korea
Fludioxonil	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Fluopyram	0.01	0.01	0.4 ¹⁹ , 0.6 ^{7,13} , 1.0 ²⁰	1.0	1.0	1.0	1.0 ⁶
Flutriafol	0.1	0.01	None	0.1	None	0.01	2.0 ^{7,20}
Formetanate	0.5	0.01	None	0.4 ¹⁹ , 0.9 ⁷ , 0.09 ²⁰ , 0.03 ¹³	1.5 ^{7,19} , 0.6 ²⁰ , 0.03 ¹⁰	2.0 ^{7,19} , 0.6 ²⁰ , 0.03	None
Fosetyl-Al	50.0	50.0	20 ⁷ , 50 ¹³	9.0	None	150.0	0.05 ^{19,20} , 4.0 ⁷
Fosthiazate	0.1	0.02	None	0.1	None	0.01	None
Furfural	1.0 ⁿ	1.0	None	None	None	None	None
Gibberellic Acid	Exempt	Exempt	None	0.1	Exempt	0.2	None
Granulovirus	None	None	None	None	None	None	None
Guazatine	5.0	0.05	5.0	0.1	None	None	None
<i>Helicoverpa armigera</i> nucleopolyhedrovirus	None	None	None	None	None	None	None
Imazalil (Chloramizol)	5.0	4.0 ^{7,19} , 5.0 ^{13,20}	5.0, 8.0 ⁷ , 15.0 ²⁰	5.0	10.0	5.0	15.0
Imidacloprid	0.5	0.5 (0.01) ^{EU3}	1.0	1.0	0.7	0.7 ⁶ , 0.3 ¹³	0.7
Iprodione	1.0	0.01	None	0.1	None	10.0	7.0 ²⁰ , 2.0 ¹³
Isazophos	0.02	0.01	None	0.1	None	0.01	None
Kresoxim-methyl	0.5	0.01, 0.5 ^{7,19}	0.5 ^{7,19}	0.1, 9.0 ¹³	None	10.0	2.0 ¹³
Mercaptothion	4.0	2.0	7.0	0.1	8.0	7.0	4.0 ⁷ , None ¹¹
Metalaxyl M (Mefenoxam)	0.5	0.5	5.0	5.0	1.0	0.7	None
Methamidophos	0.2	0.01	None	0.1	None	1.0	0.2 ¹³
Methidathion	2.0	0.02	5.0 ¹³	2.0	None	5.0	0.01
Methiocarb	0.1	0.03	None	0.1	None	0.05	0.03, 0.5 ¹³
Methomyl (Thiodicarb)	0.2	0.01	1.0	1.0	2.0	10.0	0.7 ¹³
Methoxyfenozide	0.5 ⁿ	0.5	2.0	10.0	3.0	3.0	1.0 ¹³ , 3.0
Methyl-parathion	1.0	0.01	None	0.1	None	0.2	None
Mevinphos	0.1	0.01	None	0.2	None	0.01	0.01
Orange Oil	Exempt	None	None	None	None	Exempt	None
Omethoate	2.0	0.01	None	0.1	None	1.0	0.01
Parathion	0.5	0.05	None	0.1	None	0.5	None
Permethrin	0.01	0.01	0.5	0.1	None	5.0	0.5
Phenthoate	1.0	0.01	None	0.1	None	2.0 ²⁰ , 5.0 ¹¹	1.0, 2.0 ²⁰
Phosphorous acid	50.0	15.0	None	0.1	Exempt	150	None
Pirimicarb	0.5	0.5	3.0	0.1	None	0.05, 0.5 ⁷	None
<i>Paecilomyces lilacinus</i>	None	None	None	None	None	0.01	None
Prochloraz	2.0	0.03	10.0	0.1	None	0.01	1.0 ¹³
Procymidone	0.2	0.01	None	0.1	None	0.01	None
Profenofos	1.0	0.01	None	0.1	None	0.01	None
Propiconazole	6.0	0.01	10.0, 4.0 ¹⁹	8.0	8.0	8.0	8.0
Prothiofos	0.05	0.01	None	0.1	None	0.01	0.2 ¹³
Pymetrozine	0.3 ⁿ	0.02	None	None, 0.2 ^{7,13,20}	None	None	0.3 ^{13,20}
Pyraclostrobin	0.5 (0.1) ⁿ	0.5 (0.1) ⁿ	2.0	2.0	2.0	2.0	2.0
Pyrethrins (incl Pyrethrum)	1.0	1.0	0.05	1.0 ²	1.0 ²	1.0	1.0
Pyrimethanil	10.0	8.0	7.0	10.0	10.0	10.0	1.0 ¹³ , 7.0 ^{s1}

Chemical	RSA	General export tolerance	Codex	Canada	USA	Japan	Korea
Pyriproxyfen	0.2	0.2	0.5	0.5	0.5	2.0	0.7 ¹³ , None ¹¹
SOPP	10.0	10.0	10.0	10.0	10.0	10.0	None
Spinetoram	0.05	0.02 ^{19,20} , 0.07 ⁷ , 0.15 ¹³ EU4	0.07 ⁷ , 0.15 ¹³	0.3	0.3	0.7	0.5 ¹³ , 0.05 ⁷
Spinosad	0.05	0.05	0.3	0.3	0.3	0.3	0.3
Spirodiclofen	0.01	0.01	0.4	0.5	0.5	2.0	2.0 ¹³ , 0.4
Spirotetramat	1.0	0.5	0.5	0.6	0.6	3.0	2.0 ²⁰ , 0.5
Sulfoxaflor	0.3 ⁿ	0.15 ¹⁹ , 0.3	0.15 ^{19,22} , 0.4 ²⁰ , 0.8 ^{7,13}	0.7	0.7	2.0	0.6 ²⁰ , 0.3 ¹⁹ , 0.7 ⁷ , 1.0 ¹³
Sulphur	50.0	50.0	None	Exempt	Exempt	Exempt	None
Tartar emetic (Antimony)	3.0	1.0	None	0.1	None	0.01	None
Tau-Fluvalinate	1.0 ⁿ	0.4	None	0.1	None	2.0	None
Tebuconazole	0.02	0.02	0.4 ⁷ , 0.7 ¹³	0.1 ¹¹ , 1.0 ^{7,13}	None ¹¹ , 1.0 ⁷	5.0	2.0 ^{13,20}
Temephos	1.0	0.01	None	0.1	None	0.01	None
Terbufos	0.1	0.01	None	0.1	None	0.005	None
Tetradifon	5.0	0.01	None	2.0	None	2.0	3.0 ¹³ , None ¹¹
Thiabendazole	6.0	6.0	8.0	10.0	10.0	10.0	10.0 ¹³ , 7.0
Thiacloprid	None	0.01	None	0.1	None	0.01	0.7 ^{7,20} , 0.3 ¹³
Thiophanate-Methyl	5.0	0.01	None	10.0	None	7.0 ^{19,20} , 3.0 ¹¹	0.7 ²⁰ , 5.0 ¹³
Trichlorfon	0.1	0.01	None	0.1	None	0.1	0.2 ¹³ , 0.05 ^{20,7}
Trifloxystrobin	0.1	0.1	0.5	0.6	0.6	3.0	0.5
Triflumuron	0.5	0.01	None	0.1	None	0.02	0.01
Uniconazole	0.01 ⁿ	0.01	None	0.1	None	None	None
2,4-D	2.0	1.0	1.0	2.0	3.0	2.0 (3.0) ⁱ	0.15, 1.0 ²⁰
3,5,6 TPA/Trichlopyr	0.1	0.01	None	0.1	None	0.1	0.1 ¹³

"None" = no MRL, therefore fruit must be free of detectable residue. However, in the case of CODEX countries additional options may apply – refer to notes.

SUMMARY TABLE OF CHANGES EFFECTIVE FROM THIS EDITION

Active	Country	Previous MRL	New MRL	PHI Changes
Aldicarb	All			Removed as no longer registered
Chlorpyrifos	USA	1.0 (0.01) ^{US2}	0.01	Not later than 90% petal fall for sprays, 0d PHI for soil and stem applications as registered.
Cypermethrin	USA	None, 0.35 ^c	None, 0.35, 0.5 ¹⁹ , 0.3 ^{7, 20,} c	28d PHI as registered for alpha and zeta-Cypermethrin formulations (Zeta-Cypermethrin not to be used on mandarins).
Gibberellic Acid	EU	0.2	Exempt	No change
Gibberellic Acid	RSA	0.2	Exempt	No change
Mercaptotion	South Korea	5 ^{19, 20} , 4.0 ⁷ (4.0 ⁷ None ^{11,} s ³)	4.0 ⁷ , None ¹¹	7d PHI for oranges and 28d PHI for other citrus
Monocrotophos	All			Removed as no longer registered
Prochloraz	Japan	0.1	0.01	Not permitted
Pyrimethanil	South Korea	7.0	1.0 ¹³ , 7.0	Not permitted for Soft Citrus and post-harvest as registered for other citrus
SOPP	South Korea	10.0	None	Not permitted
Tebuconazole	CODEX	None	0.4 ⁷ , 0.7 ¹³	No change
Teflubenzuron	All			Discontinued by supplier
Teflubenzuron	All			Removed as no longer registered
Thiabendazole	CODEX	7.0	8.0	No change

NOTES

Numerical Superscripts:

- 1 fruit without peel/pulp
- 2 just oranges
- 3 exocarp of summer oranges
- 4 fruit (except exocarp of summer oranges)
- 5 just peel
- 6 except mandarin oranges
- 7 Oranges, sweet, sour
- 8 Citrus pulp, dried
- 9 Whole fruit
- 10 Clementines, mandarins
- 11 Other citrus
- 12 Except summer oranges
- 13 Mandarins
- 14 Pulp juice
- 15 No specific crop
- 16 Summer orange and mandarins
- 17 Summer orange, pulp and peel
- 18 Summer orange, pulp
- 19 Only grapefruit
- 20 Only lemons
- 21 mandarins, limes and lemons
- 22 grapefruit, oranges and pommelos.

“None” = no MRL, therefore fruit must be free of detectable residue. However, in the case of CODEX countries additional options may apply – refer to notes.

Alphabetical Superscripts:

a = CODEX (A): See Regions and Country Groupings Table below.

b = CODEX (B): See Regions and Country Groupings Table below.

c = USA has MRLs on citrus for Alpha-Cypermethrin (0.35mg/kg) and Zeta-Cypermethrin (0.5 mg/kg for grapefruit, 0.3 mg/kg for lemons and oranges) but none for Cypermethrin, which means only Alpha and Zeta-Cypermethrin formulations are suitable for the USA..

d = Reference to “Citrus Fruits” in Taiwan MRL legislation should be interpreted as “oranges only” but “Citrus” refers to all citrus types.

EU3 = EU Imidacloprid MRLs are under review and will be lowered with the expectation that this will occur in the second

- half of 2022 subject to the EU MRL decision-making process.
- EU4 = New MRL's of 0.02 mg/kg (grapefruit and lemons), 0.07 mg/kg (oranges) and 0.15 mg/kg (mandarins) for Spinetoram will apply from the 27th of January, 2022.
- f = The EU Fenpropathrin MRL is expected to be lowered to LOD in due course and a 180d PHI will then apply. These changes are not expected to impact the 2022 export season.
- g = Norway has a new Chlorantraniliprole (Rynaxypyr) MRL of 0.01mg/kg. A PHI of not later than 90% petal fall applies.
- h = From 30st April 2012 all Endosulfan uses in South Africa will be prohibited by the Registrar of Act 36 of 1947
- l = FSG241 proposed to increase the Japanese MRL for 2,4-D to 3.0 mg/kg
- k = Pending decision by Japanese authorities regarding the use of disinfectants.
- l = See CRI Production Guideline for appropriate application techniques.
- n = This active has obtained RSA usage authorization and a provisional MRL. CGA is engaged in a process with the Registrar and Department of Health to confirm these MRLs.
- o = China set the 2,4-D MRL to 0.1 mg/kg for oranges and soft citrus in February 2020. Packhouses managers need to determine practices in their situation which will result in residues below 0.1 mg/kg for oranges and soft citrus.
- q = Gulf states that subscribe to the Gulf Standards Organization (GSO) MRL include UAE, Kingdom of Bahrain, Kingdom of Saudi Arabia, Sultanate of Oman, State of Kuwait and Republic of Yemen. The GSO has published an 2,4-D MRL of 0.05 mg/kg.
- T1 = Taiwan has a Grapefruit MRL of 5.0 mg/kg and use of Fludioxonil as registered may lead to exceedances of this MRL
- US1 = The USA Clothianidin MRL expires on the 31st December 2023.
- Y = Pay special attention to the introductory notes on page one (3rd paragraph) dealing with lemons.

REGIONS AND COUNTRY GROUPINGS

<u>Description</u>	<u>Countries</u>
CODEX A (Where no national MRL is set, CODEX MRLs apply)	Africa [Angola, Benin, Botswana, Congo (Republic of), Gabon, Kenya, Madagascar, Mali, Mauritius*, Mauritania, Namibia, Senegal, Seychelles, Reunion*, Sudan*, Tanzania] Asia [China (Peoples Republic of), Hong Kong, Indonesia, Malaysia, Singapore, Thailand, Viet Nam]
CODEX B (Where no national MRL is set, CODEX MRLs apply, or when no CODEX MRL is set RSA MRL apply)	Africa [Burkina Faso, Cameroon, Cote D'ivoire, Malawi, Nigeria, Tunisia, Uganda] Asia [Bangladesh, Sri Lanka, Philippines] Middle East [Azerbaijan, Iran, Jordan*, Pakistan] Other [Russian Federation, Georgia*]
Gulf State Organization (GSO)	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates

* It has not been possible to re-confirm these requirements recently but presumably they still apply