

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.	-	-	-	South Korea: 70d PHI for lemons, oranges and grapefruit and 40d PHI for soft citrus.
Acetamiprid/ Mospilan	150d PHI as registered.	-	-	-	-	-	South Korea: 150d PHI as registered. 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.	-	-	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.
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.	South Korea: Not later than 90% petal fall for oranges, grapefruit and soft citrus, and 120d PHI as registered for lemons. GSO: 90d PHI for oranges and 14d PHI as registered for other citrus. Thailand: 120d PHI for oranges and 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, 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.
Chlorantranilprole (Rynaxypyr)/ Coragen	7d PHI as registered.	-	-	-	-	7d PHI as registered. Not later than 90% petal fall for soft citrus.	Norway: see note g.
Clothianidin/ Dantop	120d PHI as registered	-	-	-	-	-	-
Copper	14d PHI as registered	-	-	-	-	-	-
Cyantranilprole / 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	-
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.	South 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. Thailand: 21d PHI 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 for other citrus.
(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.	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Etoxazole/ Smite	28d PHI as registered.	-	-	-	-	-	South Korea: Not later than 90% petal fall for oranges and grapefruit and 28d PHI as registered for lemons and soft citrus.
Fenamiphos/ NemaCur	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	-	-	-	-	-	-
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.	South 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.	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
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.	Great Britain ^m : 212d PHI as registered. Taiwan: 212d PHI as registered for oranges and not later than 90% petal fall for other citrus. Thailand: 212d PHI as registered.
Iprodione/ Rovral (Dicarboxamil)	Not later than 90% petal fall.	-	115d PHI as registered.	-	-	-	GSO, Switzerland and Taiwan: Not later than 90% petal fall South 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.	-	-	-	-	-	-
Kresoxim-methyl/ Strobry	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. South Korea: 115d PHI as registered for soft citrus and not later than 90% petal fall for other citrus.
Mercaptothion/ Malathion (fruit fly baiting only)	Only dilute concentration, do not use higher concentrations. 7d PHI.	-	-	14d PHI	-	-	South Korea: 7d PHI for oranges and 28d PHI for other citrus. Thailand: 14d PHI for grapefruit and 7d PHI for other citrus. Switzerland: 28d PHI.
Metalaxyl M/ Ridomil Gold	30d PHI as registered.	-	-	-	-	-	South Korea: Not later than 90% petal fall
Methamidophos/ Citrimet	60d PHI	-	21d PHI as registered.	21d PHI as registered.	-	-	
Methidathion/ Ultracide	Not later than 90% petal fall.	56d PHI as registered for soft citrus and not later than 90% petal fall for other citrus.	56d PHI as registered for soft citrus and not later than 90% petal fall for other citrus.	56d PHI as registered.	-	56d PHI as registered.	South 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.	-	-	-	-	-	South Korea: 21d PHI as registered for soft citrus 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.

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
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 / Penncap	Not later than 50% petal fall.	-	-	-	-	-	-
Mevinphos	28d PHI	-	3d PHI as registered.	3d PHI as registered .	-	-	South 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.	-	-	-	-	-	-
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, South Korea, Vietnam: Not later than 90% petal fall.
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	-	-	-	-	-	-

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
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 soft citrus.
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.	-	-	-
Pyraclostrobin/ Cabrio	45d PHI as registered.	-	-	-	-	-	Taiwan: Not later than 90% petal fall for soft citrus and 45d PHI as registered for other citrus.
Pyrethrins (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, Hong Kong, Russia, South Korea 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.	-	-	-	-	South Korea, Russia, Singapore 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.

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
Sodium ortho-phenylphenol	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. South Korea: 14d PHI for grapefruit and lemons and 7d PHI as registered of other citrus.
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.	Not later than 90% petal fall for grapefruit and 21d PHI as registered for other citrus.	-	-	-	-	-
Sulphur	0d PHI as registered.	-	-	-	-	-	-
Tartar emetic/ Tartox	30d PHI as registered.	-	-	-	-	-	-
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. South Korea: 15d PHI for soft citrus and not later than 90% petal fall for other citrus.
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/ Dipterex	28d PHI as registered.	-	10d PHI as registered.	-	-	-	South Korea: 10d PHI as registered for soft citrus and 28d PHI for other citrus.

PRODUCT	All markets (including EU) except where other restrictions are specified	CODEX (A) ^a	CODEX (B) ^b	CANADA	U S A	JAPAN	Other ^d
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.	South 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	South Korea
Acephate	0.2	0.01	None	0.1	None	0.01	5.0 ¹³ , 0.01 ¹¹
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 , 0.01 ¹¹
Amitraz	0.2	0.05	0.5 ⁷ , None ¹¹	0.1	None	0.9 ^{7, 13} , 0.5 ^{19, 20}	0.7 ²⁰ , 0.2 ¹³ , 0.01 ^{7, 19}
Avermectin	0.01	0.01	0.02	0.02	0.02	0.1	0.07 ¹³ , 0.05 ⁷ , 0.02 ²⁰ , 0.01 ¹⁹
Azadirachtin	None	0.01	None	0.1	Exempt	Exempt	0.01
Azinphos-methyl	2.0	0.01	1.0	2.0	None	0.01	0.01
Azoxystrobin	10.0	10.0	15.0	15.0	15.0	10.0	9.0 ¹³ , 10.0 ¹¹
<i>Bacillus thuringiensis</i>	None	None	None	None	None	None	Exempt
Bromopropylate	3.0	0.01	2.0	2.0	None	2.0	0.01
Buprofezin	0.05	0.01	1.0	4.0 ^{7, 13} , 0.1 ^{19, 20}	4.0	2.0 ⁷ , 3.0 ¹¹	2.5 ^{7, 20} , 0.5 ¹³ , 0.01 ¹⁹
Cadusafos	0.05	0.01	None	0.1	None	0.01	0.01
Carbendazim	5.0	0.7 ^{13, 20} , 0.2 ^{7, 19}	1.0 ⁷ , None ¹¹	10.0	None	7.0 ^{19, 20} , 3.0 ¹¹	0.7 ²⁰ , 0.01 ¹¹
Chinomethionat	0.5	0.01	None	0.1	None	0.7	0.01
Chlorfenapyr	0.01	0.01	1.5 ⁷ , 0.8 ²⁰ , None ¹¹	0.1	0.01	2.0	1.0 ^{13, 20} , 0.7 ⁷ , 0.01 ¹⁹
Chlorantraniliprole	0.5	0.5 (0.01) ^g	0.7	0.7	1.4	0.7	1.0 ^{13, 20} , 0.6 ^{7, 19}
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} , 0.01 ¹⁹
Copper	20.0	20.0	None	50.0	Exempt	Exempt	Exempt
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 , None ¹¹	0.1	Not permitted	Not permitted	1.0 ¹³ , 0.01 ¹¹
Cypermethrin	0.2	0.2	0.3	1.0	None, (0.35, 0.5 ¹⁹ , 0.3 ^{7, 20}) ^c	2.0	2.0 ¹³ , 1.5 ²⁰ , 0.3 ^{7, 19}
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 , 0.05 ^{20, 7} , 0.01 ¹⁹
Dicofol	5.0	0.02	None	0.1	None	5.0	0.01
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	0.01
Dimethyl Didecyl ammonium Chloride	6.0	0.1 (0.05) ^{EU1}	None	0.1	Exempt	Not permitted ^k	0.01
Dithiocarbamate	3.0	3.0	10.0 ¹³ , 2.0 ⁷ , None ¹¹	0.1	10.0 ¹³ , None ¹¹	10.0 ¹³ , 2.0 ¹¹	5.0 ¹³ , 3.0 ²⁰ , 0.01 ^{7, 19}
(E)-8-Dodecen-1-yl acetate + (Z)-8-Dodecen-1-yl acetate	None	0.01	None	None	Exempt	None	None
Emamectin Benzoate	0.01	0.01	None	0.1	None	0.01	0.05 ^{7, 13, 20} , 0.01 ¹⁹
Endosulfan ^h	0.05	0.05	None	0.1	None	0.5	0.01
Ethephon	2.0	0.05	None	1.0	None	2.0	0.01
Ethoprophos	0.05	0.01	None	0.1	None	0.005	0.01
Etoxazole	0.2	0.1	0.1	0.1	0.1 ⁶	0.7	1.0 ¹³ , 0.7 ²⁰ , 0.01 ^{7, 19}

Chemical	RSA	General export tolerance	Codex	Canada	USA	Japan	South Korea
Fenamiphos	0.05	0.01	None	0.1	None	0.2	0.01
Fenazaquin	0.05	0.05	None	0.1	0.4	0.01	2.0 ¹³ , 0.4 ¹¹
Fenbutatin-oxide (Hexakis)	1.0	0.01	5.0	2.0	20.0	5.0	0.01
Fenpropathrin	0.5	0.5 ^f	2.0	2.0	2.0	5.0	5.0 ¹³ , 2.0 ¹¹
Fenpyroximate	0.2	0.2	0.6	1.0	1.0	2.0	0.7
Fipronil	0.05	0.005	None	0.1	None	0.01	0.01
Fludioxonil	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Fluopyram	0.01	0.01	1.0 ²⁰ , 0.6 ^{7, 13} , 0.4 ¹⁹	1.0	1.0	1.0	1.0 ^{7, 19, 20} , 0.01 ¹³
Flutriafol	0.1	0.01	None	0.1	None	0.01	2.0 ^{13, 20} , 0.01 ^{7, 19}
Formetanate	0.5	0.01	None	0.9 ⁷ , 0.4 ¹⁹ , 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	0.01
Fosetyl-Al	50.0	50.0	50.0 ¹³ , 20.0 ⁷ , None ¹¹	9.0	None	150.0	9.0 ¹³ , 4.0 ⁷ , 0.01 ^{19, 20}
Fosthiazate	0.1	0.02	None	0.1	None	0.01	0.01
Furfural	1.0 ⁿ	1.0	None	0.1	None	0.01	0.01
Gibberellic Acid	Exempt	Exempt	None	0.1	Exempt	0.2	Exempt
Granulovirus	None	None	None	None	None	None	None
Guazatine	5.0	0.05	5.0	0.1	None	0.01	0.01
<i>Helicoverpa armigera</i> nucleopolyhedrovirus	None	None	None	None	None	None	None
Imazalil (Chloramizol)	5.0	5.0 ^{13, 20} , 4.0 ^{7, 19}	15.0 ²⁰ , 8.0 ⁷ , 5.0 ¹¹	5.0	10.0	5.0	15.0
Imidacloprid	0.5	0.5 (0.01) ^{EU3}	1.0	1.0	0.7	0.7	0.7
Iprodione	1.0	0.01	None	0.1	None	10.0	7.0 ²⁰ , 2.0 ¹³ , 0.01 ^{7, 19}
Isazophos	0.02	0.01	None	0.1	None	0.01	0.01
Kresoxim-methyl	0.5	0.5 ^{7, 19} , 0.01 ¹¹	0.5 ^{7, 19} , None ¹¹	9.0 ¹³ , 0.1 ¹¹	None	10.0	2.0 ¹³ , 0.01 ¹¹
Mercaptothion	4.0	2.0	7.0	0.1	8.0	7.0	4.0 ⁷ , 0.01 ¹¹
Metalaxyl M (Mefenoxam)	1.0	0.5	5.0	5.0	1.0	0.7	0.01
Methamidophos	0.2	0.01	None	0.1	None	1.0	0.2 ¹³ , 0.01 ¹¹
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	0.5 ¹³ , 0.01 ¹¹
Methomyl (Thiodicarb)	0.2	0.01	1.0	1.0	2.0	10.0	0.7 ¹³ , 0.01 ¹¹
Methoxyfenozide	0.5 ⁿ	0.5	2.0	10.0	3.0	3.0	1.0 ¹³ , 3.0 ¹¹
Methyl-parathion	1.0	0.01	None	0.1	None	0.2	0.01
Mevinphos	0.1	0.01	None	0.2	None	0.01	0.01
Orange Oil	Exempt	None	None	None	None	Exempt	Exempt
Omethoate	2.0	0.01	None	0.1	None	1.0	0.01
Parathion	0.5	0.05	None	0.1	None	0.5	0.01
Permethrin	0.01	0.01	0.5	0.1	None	5.0	0.01
Phenthoate	1.0	0.01	None	0.1	None	5.0	2.0 ²⁰ , 1.0 ¹¹
Phosphorous acid	50.0	15.0	None	0.1	Exempt	150	0.01
Pirimicarb	0.5	0.5	3.0	0.1	None	0.5 ⁷ , 0.05 ¹¹	0.01
<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 , 0.01 ¹¹
Procymidone	0.2	0.01	None	0.1	None	5.0	0.01
Profenofos	1.0	0.01	None	0.1	None	0.01	0.01

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

“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
(E)-8-Dodecen-1-yl acetate + (Z)-8-Dodecen-1-yl acetate	General Export Tolerance	None	0.01	No change.
2,4-D	Japan	2.0	3.0	No change.
Acephate	South Korea	5.0 ¹³	5.0 ¹³ , 0.01 ¹¹	70d PHI for lemons, oranges and grapefruit and 40d PHI for soft citrus.
Azinphos-methyl	South Korea	1.0, 2.0 ¹³	0.01	Not later than 90% petal fall.
Azoxystrobin	South Korea	10.0	9.0 ¹³ , 10.0 ¹¹	No change.
Buprofezin	Japan	2.0 ⁷ , 1.0 ¹³ , 3.0 ¹¹	2.0 ⁷ , 3.0 ¹¹	No change.
Carbendazim	Thailand	1.0 ⁷	1.0 ⁷ , 0.01 ¹¹	120d PHI for oranges and not later than 90% petal fall for other citrus.
Chlorfenapyr	Japan	2.0, 0.3 ¹³	2.0	No change.
Chlorpyrifos	Taiwan	1.0	0.01	Not later than 90% petal fall for sprays, 0d PHI for soil and stem applications as registered.
Dicofol	Taiwan	1.0	0.01	Not later than 90% petal fall.
Dicofol	South Korea	1.0 ⁶	0.01	Not later than 90% petal fall.
DDAC	EU	0.1	0.1 (0.05) ^{EU1}	No change.
Dithiocarbamates	Thailand	2.0 ⁷	10.0 ¹³ , 2.0 ⁷ , 0.01 ¹¹	21d PHI 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 for other citrus.
Etoxazole	Japan	0.7, 0.5 ¹³	0.7	No change.
Etoxazole	South Korea	0.5 ¹³	1.0 ¹³ , 0.7 ²⁰ , 0.01 ^{7, 19}	South Korea: Not later than 90% petal fall for oranges and grapefruit and 28d PHI as registered for lemons and soft citrus.
Fenamiphos	European Union	0.02	0.01	No change.
Fenazaquin	Japan	0.01	0.4	No change.
Fenpyroximate	Japan	1.0	2.0	No change.
Imidacloprid	Japan	0.7 ⁶ , 0.3 ¹³	0.7	212d PHI as registered.
Imidacloprid	Thailand	1.0 ⁷	1.0	212d PHI as registered.
Kresoxim-methyl	South Korea	2.0 ¹³	2.0 ¹³ , 0.01 ^{7, 19, 20}	115d PHI as registered for soft citrus and not later than 90% petal fall for other citrus.
Mercaptothion	Thailand	7.0 ⁷ , 0.2 ¹⁹	7.0 ¹¹ , 0.2 ¹⁹	14d PHI for grapefruit and 7d PHI for other citrus.
Metalaxyl- M	South Korea	None	0.01	Not later than 90% petal fall.
Methamidophos	South Korea	0.2 ¹³	0.2 ¹³ , 0.01 ¹¹	60 days PHI.
Phenthoate	Japan	2.0 ²⁰ , 5.0 ¹¹	5.0	No change.
Pirimicarb	South Korea	None	0.01	Not later than 90% petal fall.
Procymidone	Japan	0.01	5.0	No change.
Pyrethrins	Hong Kong	-	0.05	Not later than 90% petal fall.
Pyrethrins	Russia	0.05	0.05	Not later than 90% petal fall.
Pyrethrins	South Korea	None	0.01	Not later than 90% petal fall.
Pyrimethanil	Russia	7.0	7.0	Post-harvest as registered. Do not use in HOT water bath and not recommended for wax application.
Pyrimethanil	Singapore	-	7.0	Post-harvest as registered. Do not use in HOT water bath and not recommended for wax application.
Spinetoram	South Korea	0.5 ¹³ , 0.05 ⁷	0.5 ¹³ , 0.05 ^{7, 20} , 0.01 ¹⁹	14d PHI for grapefruit and lemons and 7d PHI as registered of other citrus.

Sulfoxaflor	Codex	0.15 ¹⁹ , 0.4 ²⁰ , 0.8 ^{7,13}	None ¹⁹ , 0.4 ²⁰ , 0.8 ^{7,13}	Not later than 90% petal fall for grapefruit and 21d PHI as registered for other citrus.
Tetradifon	South Korea	3.0 ¹³ , None ¹¹	3.0 ¹³ , 0.01 ¹¹	15d PHI for soft citrus and not later than 90% petal fall for other citrus.
Thiabendazole	Codex	8.0	7.0	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, soft citrus
- 11 Other citrus
- 12 Except summer oranges
- 13 Soft citrus
- 14 Pulp juice
- 15 No specific crop
- 16 Summer orange and soft citrus
- 17 Summer orange, pulp and peel
- 18 Summer orange, pulp
- 19 Only grapefruit
- 20 Only lemons
- 21 soft citrus, 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.

EU1 = The EU have notified their intention to lower the DDAC MRL from 0.1 mg/kg to 0.05 mg/kg (G/SPS/N/EU/581)

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.

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

k = Pending decision by Japanese authorities regarding the use of disinfectants.

l = See CRI Production Guideline for appropriate application techniques.

m = Great Britain includes England, Scotland and Wales. EU MRLs apply in Ireland.

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