DRENCHER AND WATER TANK FUNGICIDES

COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
 IMACIDE® 7.5 LS	90	Imazalil 7.5 % (sulphate) w/v	0.5 - 0.6 %	A Soluble Liquid Formula (SL) ideal for the drencher, with very little stirring the Imazalil completely solubilizes. When an Emulsifiable Concentrate (EC) formula is used in such applications, active material may be lost due to emulsion breakdown.
 CITROCIL®	94	Imazalil 7.5 % (sulphate) w/v + Orthophenylphenol 10 % w/v	0.5 - 0.6 %	An ideal combination due to the broad spectrum of fungicidal activity and the sporulation control that Imazalil provides.
 PHILABUSTER 400 SC	1007	Pyrimethanil 20% w/v + Imazalil 20% w/v	0.2 - 0.25 %	Ideal combination for sporulation control and control of Imazalil resistant strains. Particularly suitable for cold storage and long distance shipments.
 CITROPYR®	1015	Pyrimethanil 19.2% w/v + Clove Oil 18.5% w/v	0.25 %	Very good control of ***Penicillium***. Excellent tool to combat strains resistant to Imazalil and other fungicides.
 CITRO-AL 80% WG	MP23	Fosetyl-Al 80 % w/w	0.3 - 0.4 % w/v	For use in the control of brown rot fungal decay (***Phytophtora spp***).
 ORTOCIL®	87	Orthophenylphenol 10 % w/v	1 - 2 %	Broad spectrum fungicide, very effective against wound pathogens and recommended for the control of ***Rhizopus spp*** and ***Geotrichum spp***.
 TIABENDAZOL 60	MP62	Thiabendazole 60 % w/v	- **Citrus Fruit:** 0.2 - 0.3 % - **Seeded Fruit:** 0.15 - 0.2 % - **Papaya:** 0.075 % - **Bananas:** 0.035 - 0.075 %	Broad spectrum fungicide for postharvest use on various fruits.
 FUNG-CID ORTO FOAM	82	Orthophenylphenol 13 % (sodium salt) w/v	0.12 - 0.15 L/Tm	For foam tank use in the hygienic washing of citrus fruit.
 FUNG-CID GRAS SP	60	Food additive (E-202) 30% w/v[1]	1.5 - 7 %	E-202 formulation suitable for the control of citrus decay. Especially for addition to the treatment solutions when ***Geotrichum spp*** field inoculum is high.

WAX FUNGICIDES

COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
 CITROSOL 500	75	Imazalil 50 % w/v	0.4 %	Formula used to incorporate Imazalil into the waxes as a fungicidal treatment.
 FECUNDAL 500 EC	MP198	Imazalil 50 % w/v		
 ORTOSOL 6500	64	Orthophenylphenol 28.6 % (sodium salt) w/v	1.25 %	Formulated to incorporate orthophenylphenol into the waxes as a fungicidal treatment. It prevents the formation of ***Cladosporium spp*** mold and other pathogens in the calyx during long distance shipments.

[1] Food additive specifically authorized by the EU for fruit.

EU WAXES CITRUS

POLYETHYLENE WAXES

COMMERCIAL NAME	CODE	INGREDIENTS [2]	CHARACTERISTICS
CITROSOL® A V UE	613	Polyethylene + Shellac	De-greening wax, allows color development after application.
CITROSOL® A UE	653		Market wax, good shine and excellent control of weight loss.
CITROSOL® A LONG STORAGE UE	652		Very suitable for long storage periods and extended refrigerated transport.
CITROSOL® A EXTRA UE	642		Superior shine as well as durability.

LOW DRYING TEMPERATURE WAXES

COMMERCIAL NAME	CODE	INGREDIENTS [2]	CHARACTERISTICS
CITROSOL® A V S UE	665	Polyethylene + Shellac	Low drying temperature de-greening wax.
CITROSOL® A S UE	666		Low drying temperature wax affording energy savings of 60-70 %; good shine.
CITROSOL® A S EXTRA UE	668		Low drying temperature wax especially for the waxing of citrus fruits marketed with leaves; superior shine.
CITROSOL SUNSEAL® UE	676		Low drying temperature wax (60-70 % energy saving) ideal for long duration maritime shipments. Good weight loss control, good shine and resistant to film breakage caused by condensation.
CITROSOL SUNSEAL® EXTRA UE	678		Low drying temperature wax (60-70 % energy saving) perfect for long duration maritime shipments. With enhanced shine and weight loss control over **CITROSOL SUNSEAL® UE**.

CARNAUBA WAXES

COMMERCIAL NAME	CODE	INGREDIENTS [2]	CHARACTERISTICS
CITROSOL® AK V UE	685	Carnauba + Shellac	Carnauba de-greening wax, allows color development after application.
CITROSOL® AK UE	686		Carnauba market wax, good shine.
CITROSOL® AK EXTRA UE	680		Carnauba market wax, superior shine.

SPECIAL WAXES

COMMERCIAL NAME	CODE	INGREDIENTS [2]	CHARACTERISTICS
CITROSOL® A LIMES UE	644	Polyethylene + Shellac	Ideal to maintain the shine on and freshness of limes during prolonged refrigerated transport.
CITROSOL® A DRENCHER UE	656	Polyethylene + Shellac	Wax for drencher application on citrus fruit destined for cold storage.
CITROPROTECT	687	Carnauba	Wax for drencher application on citrus fruit with a phyto-protective effect.
CITROSOL® A SPRAY UE	662	Food additives	Wax for spray application to enhance shine.

[2] Food additives specifically authorized by the EU for fruit in question.

WAXES EU WITH FUNGICIDE TREATMENT

COMMERCIAL NAME	CODE [3]	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
CITROSOL® A IMAD 2	**Z 2**	**Waxes + Imazalil 0.2 % w/v**	**1 L / Tm**	The emulsification of Imazalil in the waxes through our production process guarantees that there are no variations in the concentration of Imazalil due to breakage of the emulsion. Breakage of the emulsion can cause accumulations of Imazalil in the bottom of the wax drum, causing a risk of exceeding the corresponding MRLs, and a decrease in the concentration of Imazalil within the rest of the wax which consequently decreases the efficacy of the wax in decay control.
CITROSOL® A IMAD 3	**Z 3**	**Waxes + Imazalil 0.3 % w/v**	**1 L / Tm**	
CITROSOL® A IMAD 2 TBZ 5	**Z 2 TBZ 5**	**Waxes + Imazalil 0.2 % w/v + Thiabendazole 0.5 % w/v**	**1 L / Tm**	
CITROSOL® A TBZ 5	**TBZ 5**	**Waxes + Thiabendazole 0.5 % w/v**	**1 L / Tm**	Fungicidal treatment effective against ***Geotrichum candidum*** and against the growth of saprophytic fungi in the calyx such as ***Cladosporium spp***.
CITROSOL® A OPP	**0**	**Waxes + Orthophenylphenol 0.25 % w/v**	**1 L / Tm**	

BIOCIDES / DISINFECTANTS

COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
 **QUACIDE PQ60 EC**	**39**	**Poly (hexamethylene biguanide) 1 % w/w + N-(3-aminopropyl) -N-dodecylpropane-1.3-diamine 1.5 % w/w**	**Manual washing / spraying:** 25 % in water. **Air disinfection with X3 Nebulizer:** 50 % in water.	Excellent broad spectrum disinfectant for disinfection of environments and surfaces, airborne by nebulization or manual washing and/or spraying.
 **FUMISPORE®**	**MP261**	**Hydroxyacetic acid (glycolic acid) 4 % w/w**	**Canister 50 g:** 50 -70 m^3 **Canister 400 g:** 350 - 500 m^3 **Canister 800 g:** 800 - 1000 m^3	Fumigant canister for environmental and surface airborne disinfection in packinghouses. Dry disinfection with a high biocidal efficacy.
 **DECTOCIDE CDB**	**31**	**N- (3-aminopropyl) -N-dodecylpropane- 1.3-diamine1.20 % w/w**	**1 - 3 %**	Reduced foam alkaline detergent disinfectant especially for use in floor cleaning machines and field boxes and bins washing machines.
 **MIDA SAN 334 MF**	**30**	**Propane-1-ol 34.30% and Isopropane 13.65%**	**Ready to use without dilution**	Fast-drying hydroalcoholic disinfectant, designed for direct application on packinghouse surfaces and equipment by spraying or immersion.

[3] The complete code for these waxes is the wax code plus the one established in the table. The waxes that are formulated with fungicides are CITROSOL A, CITROSOL SUNSEAL, CITROSOL AK and CITROSOL A LIMES.

BIOSTIMULANTS

	COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
	FORTISOL® Ca	62	Water-soluble calcium salts (CaO), potassium (K_2O) and phosphorus (P_2O_5) 14.44 % w/w in total	0.8 - 2 %	Bioestimulant for postharvest use in citrus fruit, improves resistance to post-harvest physiological disorders such as rind disorders and chilling injury.
	TOPPER	MP257	Triclopyr at 10 % (w/w)	2 tablets per 100 L water	Phyto regulator that prevents senescence, blackening, and the subsequent drop of the calyx, in oranges, lemons and tangerines that especially takes place when the fruit has been degreened.

DETERGENTS

FOR CLEANING FRUIT

	COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
	ESSASOL	96	Biodegradable detergent 4 % w/v	6 - 8 %	Detergent for postharvest cleaning of citrus fruit.
	DETERSOL	99	Biodegradable detergent 4 % w/v	0.6 - 0.8 %	Detergent for postharvest cleaning of citrus fruit.
	NEGROL	68	Detergent 10 % w/v	4 - 6 %	Especially suitable for cleaning fruit affected by sooty mold.

FOR CLEANING EQUIPMENT AND PREMISES

	COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
	BETELENE NS 160	34	Nitric acid ≥ 25 % - < 50 % w/w	1 - 2 %	Highly acidic low foam detergent for the elimination of fungicide residues from surfaces and field boxes and bins in the horticulture industry.
	ESSASOL AC	33	Non-ionic detergents 3.5 % w/v	0.5 - 1.5 %	Especial acid detergent for cleaning field boxes and bins. Eliminates incrustations and facilitates the disinfecting action of various biocides.

PROCESSING AIDS[5]

	COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
	CITROCIDE® PC [6]	49	Peracetic acid 5 % w/w + Hydrogen peroxide 23 % w/w	0.6 %	Disinfectants for safe use on the hygienic washing of fruits and vegetables. They avoid microbiological cross-contamination in the washers and maintain the process water microbiologically clean.
	CITROCIDE® PLUS [7]	48	Peracetic acid 15 % w/w + Hydrogen peroxide 23 % w/w	0.2 - 0.4 %	

BIOCARE by CITROSOL — BIO CHAIN FOR ECO PRODUCTION[8]

Our post-harvest treatment products with EU certification for organic produce.

	COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
	CITROCIDE® PC [6]	49	Peracetic acid 5 % w/w + Oxygenated water 23 % w/w	0.6 %	Disinfectants for safe use on the hygienic washing of fruits and vegetables. They avoid microbiological cross-contamination in the washers and maintain the process water microbiologically clean. Authorized for use in organic farming.
	CITROCIDE® PLUS [7]	48	Peracetic acid 15 % w/w + Oxygenated water 23 % w/w	0.2 - 0.4 %	
	FUNG-CID BIO BNa	69	Sodium bicarbonate 8.5 % w/v	6 - 18 %	Fungistatic for decay control in citrus fruit. Its application in hot water increases efficiency. Authorized for use in organic farming.
	CITROSOL® A K BIO	710	Carnauba wax	1 L / Tm	Natural wax coating for post-harvest treatment of fruit. Provides excellent weight loss control, delaying fruit senescence and aging by reducing transpiration and respiration.

[5] The evaluation of safe use for processing aids is mandatory according to national and EU legislation to establish the innocuousness of the use of a chemical in food processing.

[6] Evaluation of Safe Use Reference AESAN-2013-002 [7] Evaluation of Safe Use Reference AECOSAN-2016-002 [8] CAAE Compliance Certificate number CE-005644-2019

PRODUCTS THAT COMPLY WITH OTHER LEGISLATIONS

FUNGICIDES

COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
 **CITROTEC 45 SC**	**MP238**	**Thiabendazole 45 % w/v**	**Citrus** Drencher: 0.25 % - 0.40 % Wax: 1 % - 1.2 % **Seeded Fruit** Drencher: 0.25 % - 0.40 % **Banana / Plantain** Drencher or immersion: 0.05 % - 0.10 % **Avocados/Paltas** Drencher or immersion: 0.30 % **Papaya** Drencher or immersion: 0.1 %	Broad spectrum fungicide to be used for various fruits post-harvest.
 **CITROSOL® 7.5 LS**	**92**	**Imazalil 7.5 % (sulphate) w/v**	**0.5 - 0.6 %**	A Soluble Liquid Formula (SL) ideal for the drencher, with very little stirring the Imazalil completely solubilizes. When an Emulsifiable Concentrate (EC) formula is used in such applications, active material may be lost due to emulsion breakdown.
 **FUNG CID ORTO**	**79**	**Orthophenylphenol 13 % w/v**	**5 %**	Only to be used for dip tank treatments.
 **ORTOSOL**	**1**	**Orthophenylphenol 20 % w/v**	**0.5 - 1 %**	Broad spectrum fungicide, ideally suited to control wound pathogens, and recommended for control of ***Rhizopus spp*** and ***Geotrichum spp***.
 **CITROXONIL**	**1019**	**Fluidoxonil 20 % w/v**	**Citrus:** 0.25 - 0.35 % **Mangos:** 0.14 % **Pommegranate:** 0.30 % **Avocados:** 0.30 % (*) **Always via Drencher or immersion**	Broad spectrum fungicide used post-harvest for varios fruits: Citrus against ***Penicillium*** and ***Diplodia spp***. Mango against ***Anthracnose***. Pommegranate against ***Botritys spp***. Avocado against ***Anthracnose*** and stem decay.
 **CITROPYR 20 EC**	**1017**	**Pyrimethanil 20 % p/v**	**Drencher or immersion:** 0.25 % **Wax:** 1.5 %	Very good control over ***Penicillium***. Excellent tool to control strains resistant to Imazalil and other fungicides.

BIOCIDES

COMMERCIAL NAME	CODE	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
 **GLOCUAT**	**40**	**Didecyldimethylammonium Chloride 25 % w/v**	**2 %**	Excellent disinfectant for installations, floors and walls.
 **GLOCUAT PC**	**41**	**Benzalkonium Chloride 0.625 % w/v + Didecyldimethylammonium Chloride 0.625 % w/v**	**Ready to use, apply undiluted via Air Disinfection with the X3 Nebulizer**	Excellent broad spectrum disinfectant for the disinfection of environments and surfaces; airborne by nebulization, manual washing or spraying.
 **CITROGUANIDA LU**	**38**	**Poly (hexamethylene biguanide) 0.75% w/v + N-(3-aminopropyl) -N-dodecylpropane-1.3-diamine 0.60 % w/v**	**Ready to use, apply undiluted via Air Disinfection with the X3 Nebulizer**	Broad spectrum disinfectant biocide for the disinfection of environments and surfaces; airborne by nebulization, manual washing or spraying.

PRODUCTS THAT COMPLY WITH OTHER LEGISLATIONS

WAXES FOR CITRUS FRUIT[9]

WATER WAXES

COMMERCIAL NAME	CODE	INGREDIENTS [9]	CHARACTERISTICS
CITROSOL® A V	522	Rosin + Polyethylene	Degreening wax, allows color development after application.
CITROSOL® A	512		Market wax, good shine and weight loss control.
CITROSOL® A EXTRA	513		Superior shine and shine durability.
CITROSOL® AK V	518	Rosin + Carnauba	Carnauba vegetable wax for degreened fruit.
CITROSOL® AK	514		High shine carnauba vegetable wax.
CITROSOL® AK 22	815		Carnauba vegetable wax with superior shine and shine durability.
CITROSOL® A FD	811	Rosin + Polyethylene + Morpholine	Low temperature drying wax.
CITROSOL® A FD EXTRA	817		Low temperature drying wax with superior shine.
CITROSOL® A LONG STORAGE	554	Rosin + Polyethylene + Shellac	Wax excellently suited to long periods of storage and extended refrigerated transport with a high shine and good control over weight loss.

SOLVENT WAXES

COMMERCIAL NAME	CODE	INGREDIENTS [9]	CHARACTERISTICS
CITROSOL® R	528	Coumarona-indene solvent wax	High shine wax for spray application.
CITROSOL® R EXTRA	532		High shine wax for spray application with superior finish.
CITROSOL® R SUPERIOR	529		High shine wax for spray application with exceptional finish.

WAXES FOR CITRUS FUNGICIDE TREATMENT[10]

COMMERCIAL NAME	CODE [11]	% ACTIVE MATERIALS	DOSE USE % V/V	RECOMMENDATIONS
CITROSOL® IMAD 2	Z 2	Waxes + Imazalil 0.2 % w/v	1 L / Tm	The emulsification of Imazalil in the waxes through our production process guarantees that there are no variations in the concentration of Imazalil due to breakage of the emulsion. Breakage of the emulsion can cause accumulations of Imazalil in the bottom of the wax drum, or 1000 Kg GRG, causing a risk of exceeding the corresponding MRLs, and a decrease in the concentration of Imazalil within the rest of the wax which consequently decreases the efficacy of the wax in decay control.
CITROSOL® IMAD 3	Z 3	Waxes + Imazalil 0.3 % w/v	1 L / Tm	
CITROSOL® IMAD 2 TBZ 5	Z 2 TBZ 5	Waxes + Imazalil 0.2 % w/v + Thiabendazole 0.5 % w/v	1 L / Tm	
CITROSOL® TBZ 5	TBZ 5	Waxes + Thiabendazole 0.5 % w/v	1 L / Tm	
CITROSOL® OPP	0	Waxes + Orthophenylphenol 0.25 % w/v	1 L / Tm	Fungicidal treatment effective against ***Geotrichum candidum*** and against the growth of saprophytic fungi in the calyx such as ***Cladosporium spp***.

[9] Waxes that do not comply with European legislation can not therefore be used for waxing and coating of citrus fruit destined for the European Union. Check with your Citrosol representative regarding conformity of these waxes with other food additive legislation. All water-based waxes comply with US and Canadian legislation and, in many cases, with the legislation of Japan and South Korea for citrus coating waxes.

[10] Waxes that do not comply with European legislation can not therefore be used for waxing and coating of citrus fruit destined for the European Union. Check with your Citrosol representative regarding conformity of these waxes with other food additive legislation. All water-based waxes comply with US and Canadian legislation and, in many cases, with the legislation of Japan and South Korea for citrus coating waxes.

[11] To obtain the complete code of these products, add the wax code to these ones. The waxes that are formulated with fungicides are CITROSOL A, CITROSOL AK, CITROSOL A FD y CITROSOL R.

The recommendations and information we provide are the result of extensive and rigorous trials and studies. However, many factors that are beyond our control can intervene when products are in use (i.e. preparation of mixtures, application, climatology, etc.) Productos CITROSOL, S.A. guarantees the composition, formulation and content.