


FOOD SAFETY AND QUALITY MANUAL						
Document Location:	Network QPM Folder	Version Number:	2	Issue Date:	12May2020	
Document Reference:	QPM 002 R002	Reason for Issue:	Analysis for material received 2019	Written By:	E.Luke	
Document Name:	<b>Due Diligence Contaminant Test Results 2020</b>			Approved By:	L. Stretch	

## **Introduction**

Samples of Crude Palm Oil, Crude Palm Kernel Oil, RBD Palm Stearin and RBD Palm Oil were taken from intake samples drawn from vessels supplying these oils to Sime Darby Oils Liverpool Refinery Ltd:

**Crude Palm Oil** – a sample was composited from ship intake samples drawn from the following load ports: Lae Oro Bay, Alotau, Kimbe, Ramu, Poliamba (all Papua New Guinea), Honiara (Solomon Islands) and Sime Darby Oils Zwijndrecht Refinery (sourced from Papua New Guinea and Solomon Islands) – note, Sime Darby Oils Zwijndrecht Refinery and Sime Darby Oils Liverpool Refinery are both part of the Sime Darby group. The initial samples were taken from the following ships: Maersk Cayman, St Nikolai, Atlantic Falcon, Ionian Star, MT Stena Imprimis, Champion Pula, Philoxenia, Yasa Pelican, Susanne Victory, Naviq8 Turquoise, Naviq8 Goal.

**Crude Palm Kernel Oil** – a sample was composited from ship intake samples drawn from the following load ports: Kimbe, Lae and Kimbe (all Papua New Guinea) and Sime Darby Oils Zwijndrecht Refinery (sourced from Papua New Guinea and Solomon Islands) – note, Sime Darby Oils Zwijndrecht Refinery and Sime Darby Oils Liverpool Refinery are both part of the Sime Darby group. Initial samples were taken from the following ships: St Nikolai, Atlantic Falcon, Yasa Pelican, Susanne Victory, Naviq8 Goal.

**RBD Palm Stearin** – a sample was composited from ship intake samples drawn from the load ports: Kimbe (Papua New Guinea) and Sime Darby Oils Zwijndrecht Refinery (sourced from Papua New Guinea and Solomon Islands) – note, Sime Darby Oils Zwijndrecht Refinery and Sime Darby Oils Liverpool Refinery are both part of the Sime Darby group. The initial samples were taken from the following ships: Maersk Cayman, St Nikolai, Atlantic Falcon, Ionian Star, Champion Pula, Philoxenia, Yasa Pelican, Susanne Victory, Naviq8 Turquoise, Naviq8 Goal.


**RBD Palm Oil** – a sample was composited from ship intake samples drawn from the load port: Kimbe (Papua New Guinea). The initial samples were taken from the following ships: St Nikolai, Maersk Cayman, Atlantic Falcon, Ionian Star, Champion Pula, Philoxenia, Yasa Pelican, Susanne Victory, Naviq8 Turquoise, Naviq8 Goal.

The samples were submitted to the following laboratories:

**Eurofins** – (ISO/IEC 17025:2005 next surveillance visit due July2020 ) for Pesticide Residues (Organo Chlorine, Organo Phosphorus, Pyrethroids, Carbamates and other Pesticides). The list includes all of those pesticides that are approved for use in the plantations.

**Dr A Verwey** – (ISO/IEC 17025:2005 approval expiry 30Nov2020) for dioxins, dioxin-like PCB's, non-dioxin-like PCB's, PAH's and the heavy metals Cadmium (Cd), Lead (Pb), Mercury (Hg), Arsenic (As), Nickel (Ni) and Tin (Sn)

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### Pesticide Residues

Each of the samples was analysed for a total of 689 analytes, this list includes all of the pesticides that are approved for use in our plantations. Eurofins test method ref #SFG0L, SFFED, SFFC0. The limit of quantification (LOQ) for each molecule is noted in the table below:


Name	LOQ	Name	LOQ
	(mg/kg)		(mg/kg)
AMINOMETHYLPHOSPHONIC ACID (AMPA)	0.01	DINOTERB	0.01
GLYPHOSATE	0.01	DNOC	0.01
GLUFOSINATE	0.01	FENOPROP	0.01
2,4 D ETHYL ESTER	0.01	FLUAZIFOP	0.01
2,4-D ISOBUTYL ESTER	0.01	FLUROXYPYR	0.01
2,4-D-BUTYL ESTER	0.005	HALOXYFOP	0.01
2,4,5-T-METHYLESTER	0.005	IMAZAMETHABENZ ACID	0.01
2,4-D-2-ETHYLHEXYL	0.005	IMAZAMOX	0.01
2,4-D-METHYLESTER	0.005	IMAZAPIC	0.01
2-PHENYLPHENOL	0.005	IMAZAPYR	0.01
ACETOCHLOR	0.01	IMAZAQUIN	0.01
ACLONIFEN	0.01	IMAZETHAPYR	0.01
NAPTALAM	0.01	IOXYNIL	0.01
ALACHLOR	0.02	MCPA	0.01
ALDRIN	0.005	MCPB	0.01
3-HYDROXYCARBOFURAN	0.01	MECOPROP	0.01
AMIDITHION	0.01	MESOTRIONE	0.01
ANTHRAQUINONE	0.005	PICLORAM	0.01
ATRAZINE	0.005	QUINCLORAC	0.01
AZACONAZOLE	0.005	QUINMERAC	0.01
AZINPHOS-ETHYL	0.01	QUIZALOFOP	0.01
AZINPHOS-METHYL	0.01	SULCOTRIONE	0.01
AZOXYSTROBIN	0.005	TRICLOPYR	0.01
BENAZOLIN-ETHYL	0.005	2,4'-FORMOXYLIDID (AMITRAZ METABOLITE)	0.01
BENFLURALIN	0.005		
BENOXACOR	0.005	6-CHLOR-3-PHENYLPYRIDAZIN-4-OL	0.01
BENZOYLPROP-ETHYL	0.005	ABAMECTIN	0.01
BIFENOX	0.005	ACEPHATE	0.01
BIFENTHRIN	0.01	ACETAMIPRID	0.01

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		ACETOCHLOR	0.02
BIPHENYL	0.01	ALACHLOR	0.01
BITERTANOL	0.01	ALDICARB	0.01
		ALDICARB-SULFONE	0.01
BROMFENVINPHOS	0.01	ALDICARB-SULFOXIDE	0.01
BROMOCYCLEN	0.01	AMETOCTRADIN	0.01
BROMOPHOS-ETHYL	0.005	AMETRYN	0.01
BROMOPHOS-METHYL	0.01	AMIDOSULFURON	0.01
BROMOPROPYLATE	0.005	AMINOCARB	0.01
BUPROFEZIN	0.02	AMITRAZ	0.01
BUTACHLOR	0.01	ANCYMIDOL	0.01
BUTAFENACIL	0.005	ATRAZIN, DESETHYL-	0.01
BUTAMIFOS	0.005	ATRAZINE	0.01
BUTRALIN	0.005	AZACONAZOLE	0.01
CADUSAPHOS	0.005	AZAMETHIPHOS	0.01
CAPTAFOL	0.02	AZIPROTRYN	0.01
CAPTAN	0.02	AZOXYSTROBIN	0.01
CARBOPHENOTHION	0.005	BENALAXYL	0.01
CARBOPHENOTHION-METHYL	0.01	BENDIOCARB	0.01
CARFENTRAZONE-ETHYL	0.005	BENFURACARB	0.01
CHINOMETHIONATE	0.01	BENODANIL	0.01
CHLORAMBEN-METHYL	0.005	BENOMYL	0.01
CHLORBENSIDE	0.005	BENSULFURON-METHYL	0.01
CHLORDANE, CIS	0.01	BENTHIAVALICARB, ISOPROPYL-	0.01
CHLORDANE, OXY-	0.01	BITERTANOL	0.01
CHLORDANE, TRANS-	0.01	BOSCALID	0.01
CHLORDECON	0.05	BROMACIL	0.01
CHLORETHOXYFOS	0.005	BUPIRIMATE	0.01
CHLORFENAPYR	0.005	BUPROFEZIN	0.01
CHLORFENPROP-METHYL	0.005	BUTOCARBOXIM	0.01
CHLORFENSON	0.005	BUTOCARBOXIM-SULFOXIDE	0.01
CHLORFENVINPHOS	0.005	BUTOXYCARBOXIM	0.01
CHLORFLURENOL-METHYL	0.01	BUTURON	0.01
CHLORIDAZONE	0.01	CADUSAPHOS	0.01
CHLORMEPHOS	0.005	CARBARYL	0.01
CHLOROBENZILATE	0.005	CARBENDAZIM	0.01
CHLORONEB	0.01	CARBOFURAN	0.01
CHLOROPROPYLATE	0.005	CARBOSULFAN	0.01


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CHLOROTHALONIL	0.01	CARBOXIN	0.01
CHLORPROPHAM	0.005	CHLORANTRANILIPROLE	0.01
CHLORPYRIFOS (-ETHYL)	0.005	CHLORBROMURON	0.01
CHLORPYRIFOS-METHYL	0.005	CHLORFLUAZURON	0.01
CHLORTHAL-DIMETHYL	0.01	CHLORIDAZONE	0.01
CHLORTHION	0.005	CHLOROTOLURON	0.01
CHLORTHIOPHOS	0.005	CHLOROXYURON	0.01
CHLOZOLINATE	0.01	CHLORPROPHAM	0.05
CINIDON-ETHYL	0.005	CHLORSULFURON	0.01
CLODINAFOP-PROPARGYL	0.005	CINIDON-ETHYL	0.05
CLOQUINTOCET-MEXYL	0.005	CINOSULFURON	0.01
COUMAPHOS	0.005	CLETHODIM	0.01
CROTOXYPHOS	0.01	CLODINAFOP-PROPARGYL	0.01
CRUFOMATE	0.01	CLOFENTEZINE	0.01
CYANOFENPHOS	0.01	CLOMAZONE	0.01
CYANOPHOS	0.005	CLOTHIANIDIN	0.01
CYENOPYRAFEN	0.005	CYANAZINE	0.01
CYFLUTHRIN	0.01	CYAZOFAMID	0.01
CYHALOTHRIN, LAMBDA-(INCL. CYHALOTHRIN, GAMMA-)	0.01	CYMOXANIL	0.02
CYPERMETHRIN	0.01	CYPROCONAZOLE	0.01
CYPROCONAZOLE	0.01	CYPRODINIL	0.01
DDD, O,P-	0.005	CYPROFURAM	0.01
DDE, O,P-	0.005	CYROMAZINE	0.01
DDT (P,P'-DDT+O,P'-DDT+P,P'-DDE+P,P'-TDE)	0.01	DEMETON	0.01
DELTAMETHRIN	0.01	DEMETON-S-METHYL	0.01
DEMETON	0.01	DESMEDIPHAM	0.01
DIALATE	0.005	DESMETRYN	0.01
DIAZINON	0.005	DIAZINON	0.01
DIBROMOBENZOPHENONE, P,P-	0.01	DICHLORVOS	0.01
DICAPTHON	0.005	DICLOBUTRAZOL	0.01
DICHOLOBENIL	0.005	DIETHOFENCARB	0.01
DICHLIFENTHION	0.005	DIETHYLTOLUAMIDE	0.01
DICHOFLUANID	0.005	DIFENOCONAZOLE	0.01
DIFLUFENICAN	0.01	DIFENOXURON	0.01
DICHLORVOS	0.01	DIFLUBENZURON	0.01




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DICLOBUTRAZOL	0.02	DIMEFOX	0.01
DICLOCYMET	0.005	DIMEFURON	0.01
DICLOFOP-METHYL	0.005	DIMETHENAMID	0.01
DICLORAN	0.005	DIMETHOATE	0.01
DICOFOL, O,P-	0.01	DIMETHOMORPH	0.01
DICFOL, P,P-	0.01	DIMETILAN	0.01
DICROTOPHOS	0.005	DIMOXYSTROBIN	0.01
DIELDRIN	0.01	DINOTEFURAN	0.02
DIFENOCONAZOLE	0.005	DISULFOTON	0.01
DIFLUFENICAN	0.005	DISULFOTON-SULFON	0.01
DIMETHACHLOR	0.005	DISULFOTON-SULFOXIDE	0.01
DIMETHIPIN	0.005	DIURON	0.01
DIMETHOATE	0.01	EMAMECTIN (SUM)	0.01
DIMETHOMORPH	0.01	EPOXICONAZOLE	0.01
DIMETHYLVINPHOS	0.01	ETHIOFENCARB	0.01
DINICONAZOLE	0.005	ETHIOFENCARB-SULFONE	0.01
DINOBTUN	0.05	ETHIOFENCARB-SULFOXIDE	0.01
DIOXABENZOFOS	0.01	ETHIPROLE	0.01
DIPHENYLAMINE	0.01	ETHOFUMESAT-2-KETO	0.05
DISULFOTON	0.05	ETHOFUMESATE	0.01
DISULFOTON-SULFON	0.01	ETHOPROPHOS	0.01
DITALIMFOS	0.01	ETOFENPROX	0.01
EDIFENPHOS	0.005	ETOXAZOLE	0.01
ENDOSULFAN SULPHATE	0.01	FAMOXADONE	0.01
ENDOSULFAN, ALPHA-	0.01	FENAMIDONE	0.01
ENDOSULFAN, BETA-	0.01	FENAMIPHOS	0.01
ENDRIN	0.01	FENAMIPHOS-SULFONE	0.01
ENDRIN KETONE	0.02	FENAMIPHOS-SULFOXIDE	0.01
EPN	0.005	FENARIMOL	0.01
EPOXICONAZOLE	0.005	FENAZAQUIN	0.01
ETACONAZOLE	0.005	FENBUCONAZOLE	0.01
ETHALFLURALIN	0.005	FENHEXAMID	0.01
ETHION	0.005	FENOBU CARB	0.01
ETHOFUMESATE	0.005	FENOXAPROP-ETHYL	0.01
ETHOPROPHOS	0.005	FENOXYCARB	0.01
ETRIDIAZOLE	0.005	FENPICLONIL	0.01
ETRIMFOS	0.005	FENPROPIDIN	0.01
FAMOPHOS	0.005	FENPROPIMORPH	0.01
FAMOXADONE	0.01	FENPYROXIMATE	0.01
FENAMIDONE	0.01	FENSULFOTHION	0.01

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FENARIMOL	0.005	FENSULFOTHION-OXON-SULFONE	0.01
FENBUCONAZOLE	0.01	FENSULFOTHION-OXON-SULFOXIDE	0.01
FENCHLORPHOS	0.005	FENSULFOTHION-SULFONE	0.01
FENCHLORPHOS OXON	0.01	FENTHION	0.01
FENFLUTHRIN	0.005	FENTHION-OXON	0.01
FENHEXAMID	0.005	FENTHION-OXON-SULFONE	0.01
FENITROTHION	0.005	FENTHION-OXON-SULFOXIDE	0.01
FENPICLONIL	0.01	FENTHION-SULFONE	0.01
FENPROPATHRIN	0.005	FENTHION-SULFOXIDE	0.01
FENSON	0.005	FENURON	0.01
FENSULFOTHION	0.005	FLAZASULFURON	0.01
FENVALERATE (RR-/SS-ISOMERS)	0.01	FLONICAMID	0.01
FENVALERATE (RS-/SR-ISOMERS)	0.01	FLORASULAM	0.01
FIPRONIL	0.01	FLUAZIFOP-P-BUTYL	0.01
FIPRONIL, DESULFINYL-	0.005	FLUAZURON	0.02
FIPRONIL-SULFIDE	0.005	FLUCYCLOXURON	0.01
FIPRONIL-SULFONE	0.005	FLUDIOXONIL	0.01
FLAMPROP-ISOPROPYL	0.01	FLUFENACET	0.01
FLAMPROP-METHYL	0.005	FLUFENOXURON	0.01
FLONICAMID	0.005	FLUOMETURON	0.01
FLUChlorALIN	0.005	FLUOPICOLID	0.01
FLUCYTHRINATE	0.005	FLUROCHLORIDONE	0.01
FLUFENOXURON	0.005	FLURPRIMIDOL	0.01
FLUMETRALIN	0.005	FLUSILAZOLE	0.01
FLUOPICOLID	0.005	FLUTRIAFOL	0.01
FLUORODIFEN	0.01	FM-6-1	0.05
FLUOROGLYCOFEN-ETHYL	0.01	FORMETANATE	0.01
FLUOTRIMAZOLE	0.005	FOSTHIAZATE	0.01
FLUQUINCONAZOLE	0.005	FUBERIDAZOLE	0.01
FLURENOL-BUTYL	0.005	FURATHIOCARB	0.01
FLURTAMONE	0.005	HALOFENOZIDE	0.01
FLUSILAZOLE	0.005	HALOXYFOP-2-ETHOXYETHYL	0.01
FOLPET	0.02	HALOXYFOP-METHYL	0.01
FONOFOS	0.005	HEXACONAZOLE	0.01

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Dithiocarbamates (CS2)	0.01	HEXAFLUMURON	0.05
FURAMETPYR	0.005	HEXAZINONE	0.01
GENITE	0.005	HEXYTHIAZOX	0.01
HALFENPROX	0.05	IMAZALIL	0.01
HALOXYFOP-2-ETHOXYETHYL	0.005	IMIBENCONAZOLE	0.01
HALOXYFOP-METHYL	0.005	IMIDACLOPRID	0.01
HCH, ALPHA-	0.005	INDOXACARB	0.01
HCH, BETA-	0.005	IODOSULFURON-METHYL	0.01
HCH, DELTA-	0.005	IPROVALICARB	0.01
HCH, EPSILON-	0.005	ISOPROCARB	0.01
HEPTACHLOR	0.005	ISOPROTHIOLANE	0.01
HEPTACHLOR EPOXIDE, CIS-	0.005	ISOPROTURON	0.01
HEPTACHLOR EPOXIDE, TRANS-	0.005	ISOXABEN	0.01
HEPTENOPHOS	0.005	ISOXAFLUTOLE	0.01
HEXACHLORO BENZENE (HCB)	0.005	ISOXATHION	0.01
HEXA CONAZOLE	0.2	LENACIL	0.01
INDANOFAN	0.01	LINURON	0.01
INDOXACARB	0.005	LUFENURON	0.05
IODOFENPHOS	0.005	MALAOXON	0.01
IOXYNIL-OCTANOATE	0.005	MALATHION	0.01
IROBENFOS	0.005	MANDIPROPAMID	0.01
IRODIONE	0.2	MEPANIPYRIM	0.01
ISAZOPHOS	0.01	METALAXYL	0.01
ISO BENZAN	0.005	METAMITRON	0.01
ISOCARBOFOS	0.005	METAZACHLOR	0.01
ISODRIN	0.02	METCONAZOLE	0.01
ISOFENPHOS	0.005	METHABENZTHIAZURON	0.01
ISOFENPHOS-METHYL	0.005	METHACRIPHOS	0.01
ISOMETHIOZIN	0.005	METHAMIDOPHOS	0.01
ISOPROPALIN	0.005	METHIDATHION	0.01
ISOXADIFEN-ETHYL	0.005	METHIOCARB	0.01
KRESOXIM-METHYL	0.005	METHIOCARB-SULFONE	0.01
LACTOFEN	0.005	METHIOCARB-SULFOXIDE	0.01
LEPTOPHOS	0.005	METHOMYL	0.01
LINDANE (GAMMA-HCH)	0.005	METHOPROTRYNE	0.01
LUFENURON	0.01	METHOXYFENOZIDE	0.01
MALAOXON	0.02	METOBROMURON	0.01


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MALATHION	0.005	METOLACHLOR	0.01
MCPA-BUTOXYETHYLESTER	0.005	METOLCARB	0.01
MCPA ETHYL ESTER	0.005	METOXURON	0.01
MCPA-1-BUTYL ESTER	0.01	METRAFENONE	0.01
MCPA-2-ETHYLHEXYL	0.005	METRIBUZIN	0.01
MCPA-METYLESTER	0.005	METSULFURON-METHYL	0.01
MCPA-THIOETHYL	0.005	MOLINATE	0.01
MECARBAM	0.01	MONOCROTOPHOS	0.01
MEPHOSFOLAN	0.01	MONOLINURON	0.01
METAMITRON	0.02	MONURON	0.01
METAZACHLOR	0.005	N-2,4-DIMETHYLPHENYL-N-METHYLFORMAMIDINE	0.05
METHACRIPHOS	0.005	NAPROPAMIDE	0.01
METHIDATHION	0.005	NEBURON	0.01
METHOXYCHLOR	0.005	NICOSULFURON	0.01
METOLACHLOR	0.01	NOVALURON	0.02
METRAFENONE	0.005	NUARIMOL	0.01
METRIBUZIN	0.01	OFURACE	0.01
MEVINPHOS	0.005	OMETHOATE	0.01
MIREX	0.005	ORBENCARB	0.01
MOLINATE	0.005	OXADIXYL	0.01
MYCLOBUTANIL	0.005	OXAMYL	0.01
NALED	0.1	OXAMYL-OXIME	0.01
N-DESETHYL-PIRIMIPHOS-METHYL	0.01	OXYDEMETON-METHYL	0.01
NITRAPYRIN	0.005	PACLOBUTRAZOL	0.01
NITROFEN	0.01	PARAOXON-ETHYL	0.01
NITROTHAL-ISOPROPYL	0.005	PARAOXON-METHYL	0.01
NORFLURAZON	0.01	PENCONAZOLE	0.01
NUARIMOL	0.01	PENCYCURON	0.01
OCTYL (2,4-DICHLOROPHENOXY)ACETATE	0.005	PENDIMETHALIN	0.01
OMETHOATE	0.01	PENTANOCHLOR	0.01
OXADIAZON	0.01	PHENMEDIPHAM	0.01
OXYFLUORFEN	0.01	PHORATE	0.05
PACLOBUTRAZOL	0.01	PHORATE-SULFONE	0.01
PARATHION	0.005	PHORATE-SULFOXIDE	0.01
PARATHION-METHYL	0.005	PHOSPHAMIDON	0.01
PCB 101	0.005	PHOXIM	0.01




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PCB 138	0.005	PICOXYSTROBIN	0.01
PCB 153	0.005	PIPERONYL BUTOXIDE	0.01
PCB 180	0.005	PIRIMICARB	0.01
PCB 28	0.005	PIRIMICARB, DESMETHYL-	0.01
PCB 52	0.005	PIRIMICARB, DESMETHYL-FORMAMIDO-	0.05
PENCONAZOLE	0.005	PRIMISULFURON-METHYL	0.02
PENDIMETHALIN	0.005	PROCHLORAZ	0.01
PENTACHLORANISOLE	0.005	PROMECARB	0.01
PENTACHLOROANILINE	0.01	PROMETON	0.01
PENTACHLOROBENZENE	0.01	PROMETRYN	0.01
PENTACHLOROTHIOANISOLE	0.005	PROPAMOCARB	0.01
PERMETHRIN	0.01	PROPARGITE	0.01
PERTHANE	0.005	PROPAZINE	0.01
PHENKAPTON	0.01	PROPHAM	0.05
PHENOTHRIN	0.1	PROPICONAZOLE	0.01
PHENTHOATE	0.01	PROPOXUR	0.01
PHOSALONE	0.005	PROPOXYCARBAZONE	0.02
PHOSFOLAN	0.01	PROQUINAZID	0.01
PHOSMET	0.005	PROSULFOCARB	0.01
PHOSPHAMIDON	0.005	PROSULFURON	0.01
PICOLINAFEN	0.005	PYMETROZINE	0.01
PICOXYSTROBIN	0.005	PYRACLOSTROBIN	0.01
PIPERONYL BUTOXIDE	0.005	PYRAFLUFEN-ETHYL	0.01
PIPEROPHOS	0.005	PYRETHRINS	0.1
PIRIMIPHOS-ETHYL	0.005	PYRIDATE	0.05
PIRIMIPHOS-METHYL	0.005	PYRIMETHANIL	0.01
PLIFENATE	0.01	PYRIMIDIFEN	0.01
Flupyr-sulfuron-methyl	0.01	PYRIPROXYFEN	0.01
PROCYMIDONE	0.005	QUIZALOFOP ETHYL	0.01
PROFENOFOS	0.01	RABENZAZOLE	0.01
PROFLURALIN	0.01	RIMSULFURON	0.05
PROPACHLOR	0.005	ROTENONE	0.01
PROPANIL	0.01	SEBUTHYLZINE	0.01
PROPAPHOS	0.01	SETHOXYDIM	0.01
PROPETAMPHOS	0.01	SILAFLUOFEN	0.02
PROPICONAZOLE	0.01	SIMAZINE	0.01
PROPIISOCHLOR	0.005	SIMAZINE, DESETHYL-	0.01
PROPYZAMIDE	0.005	SIMECONAZOLE	0.01

## FOOD SAFETY AND QUALITY MANUAL

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Document Reference:	QPM 002 R002	Reason for Issue:	Analysis for material received 2019	Written By:	E.Luke	
Document Name:	<b>Due Diligence Contaminant Test Results 2020</b>			Approved By:	L. Stretch	

PROTHIOFOS	0.01	SPINOSAD	0.02
PYRACLOFOS	0.005	SPIRODICLOFEN	0.01
PYRAFLUFEN-ETHYL	0.005	SPIROMESIFEN	0.01
PYRAZOPHOS	0.01	SPIROTETRAMAT	0.01
PYRIDABEN	0.005	SPIROXAMINE	0.01
PYRIDAPHENTHION	0.01	TEBUCONAZOLE	0.01
PYRIFENOX	0.01	TEBUFENOZIDE	0.01
PYRIMITATE	0.01	TEBUFENPYRAD	0.01
QUINALPHOS	0.01	TEFLUBENZURON	0.05
QUINOXYFEN	0.005	TEPP	0.01
QUINTOZENE	0.005	TERBACIL	0.01
RESMETHRIN	0.1	TERBUFOS	0.01
S 421	0.005	TERBUFOS-SULFONE	0.01
SPIROMESIFEN	0.005	TERBUFOS-SULFOXIDE	0.01
SULFOTEP	0.005	TERBUTHYLAZINE	0.01
SULPROFOS	0.005	TERBUTHYLAZINE, DESETHYL-	0.01
SWEP	0.005	TERBUTRYN	0.01
TAU-FLUVALINATE	0.005	TETRACONAZOLE	0.01
TEBUPIRIMFOS	0.005	THIABENDAZOLE	0.01
TECNAZENE	0.005	THIABENDAZOLE, 5-HYDROXY-	0.01
TEFLUTHRIN	0.005	THIACLOPRID	0.01
TEMEPHOS	0.005	THIAMETHOXAM	0.01
TERBACIL	0.005	THIAZAFLURON	0.01
TERBUFOS	0.01	THIFENSULFURON METHYL	0.01
TETRACHLORVINPHOS	0.005	THIOCARBAZIL	0.01
TETRACONAZOLE	0.005	THIODICARB	0.01
TETRADIFON	0.005	THIOFANOX	0.05
TETRAMETHRIN	0.05	THIOMETON	0.2
TETRASUL	0.005	THIOFANOX-SULFONE	0.01
TIADINIL	0.005	THIOFANOX-SULFOXIDE	0.01
TOLCLOFOS-METHYL	0.005	THIONAZIN	0.01
TOLYLFLUANID	0.005	THIOPHANATE (-ETHYL)	0.01
TRIADIMEFON	0.005	THIOPHANATE-METHYL	0.01
TRIADIMENOL	0.05	TRIADIMEFON	0.01
TRIALATE	0.005	TRIADIMENOL	0.01
TRIAMIPHOS	0.005	TRIAMIPHOS	0.01
TRIBUFOS	0.005	TRIASULFURON	0.01
Paraquat/Diquat	0.04	TRIAZAMATE	0.01
TRICHLORONAT	0.01	TRIAZOPHOS	0.01
TRIDIPHANE	0.01	TRIBENURON-METHYL	0.01

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TRIFLOXYSTROBIN	0.01	TRICHLORFON	0.02
TRIFLURALIN	0.01	TRICYCLAZOLE	0.01
VAMIDOTHION	0.05	TRIDEMORPH	0.1
VINCLOZOLIN	0.005	TRIETAZINE	0.01
2,4,5-T	0.01	TRIFLOXYSTROBIN	0.01
2,4-D	0.01	TRIFLOXYSULFURON	0.01
2,4-DB	0.01	TRIFLUMIZOLE	0.01
4-CPA	0.01	TRIFLUMURON	0.01
BENTAZONE	0.01	TRIFLUSULFURON-METHYL	0.05
BROMOXYNIL	0.01	TRIFORINE	0.01
CLODINAFOP	0.01	TRIMETHACARB, 3,4,5-	0.01
CLOPYRALID	0.01	TRITICONAZOLE	0.01
DALAPON	0.1	UNICONAZOLE	0.01
DICAMBA	0.01	VAMIDOTHION	0.01
DICHLORPROP	0.01	VAMIDOTHION-SULFONE	0.01
DICLOFOP	0.01	VAMIDOTHION-SULFOXIDE	0.01
DIFLUFENZOPYR	0.01	ZOXAMIDE	0.01
DINOSEB	0.01	Phthalimide (PI)	0.05

### Results

Organo Chlorine Pesticides	None Detected / Below MRL
Organo Phosphorus	None Detected / Below MRL
Pyrethroids	None Detected / Below MRL
Carbamates	None Detected / Below MRL
Other Pesticides	None Detected / Below MRL

### Analytical Results Certificate Numbers:


**AR-20-SF – 006471-01,006472-01,005300-01,005301-01**

### Heavy Metals

#### Results

Cadmium	Lead	Mercury	Arsenic	Nickel	Tin
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<b>Crude Palm Oil</b>	<0.02 mg/kg	<0.05 mg/kg	<0.005 mg/kg	<0.02 mg/kg	<0.06 mg/kg	<0.05 mg/kg
<b>Crude Palm Kernel Oil</b>	<0.02 mg/kg	<0.05 mg/kg	<0.005 mg/kg	<0.02 mg/kg	<0.06 mg/kg	<0.05 mg/kg
<b>RBD Palm Stearin</b>	<0.02 mg/kg	<0.05 mg/kg	<0.005 mg/kg	<0.02 mg/kg	<0.06 mg/kg	<0.05 mg/kg
<b>RBD Palm Oil</b>	<0.02 mg/kg	<0.05 mg/kg	<0.005 mg/kg	<0.02 mg/kg	<0.06 mg/kg	<0.05 mg/kg

### Analytical Results Certificate Numbers: 568038-420120,420119,420118,420117

The legislative limits on these contaminants in vegetable oils for food and feed are as follows:

	<b>Cadmium</b>	<b>Lead</b>	<b>Mercury</b>	<b>Arsenic</b>	<b>Nickel</b>	<b>Tin</b>
Food (EC 1881 / 2006)	-----	0.1 mg/kg maximum	-----	-----	-----	-----
Feed (EU 574 / 2011 & EU 1275 / 2013)	1 mg/kg maximum	10 mg/kg maximum	0.1 mg/kg maximum	2 mg/kg maximum	-----	-----

### Dioxins, Dioxin-Like PCB's and Non-Dioxin-Like PCB's

<b>Results</b>	Sum of Non-Dioxin-Like PCB's	Dioxins	Dioxin-Like PCB's	Sum of Dioxins and Dioxin-Like PCB's
Crude Palm Oil	0.6 µg/kg	0.164 ng/kg	0.139 ng/kg	0.303 ng/kg
Crude Palm Kernel Oil	2.0 µg/kg	0.164 ng/kg	0.140 ng/kg	0.304 ng/kg
RBD Palm Stearin	2.1 µg/kg	0.164 ng/kg	0.140 ng/kg	0.304 ng/kg
RBD Palm Oil	2.0 µg/kg	0.164 ng/kg	0.140 ng/kg	0.304 ng/kg


### Analytical Results Certificate Numbers: 568038-420120,420119,420118,420117

The results for dioxins and dioxin-like PCB's are expressed as World Health Organisation Toxic Equivalency Factors (WHO-TEF's). These toxic equivalency factors were set at the WHO International Programme on Chemical Safety (IPCS) expert meeting, held in Geneva on 28-30 June 2005.

The law requires that where the result of an individual dioxin or dioxin-like PCB congener is below the limit of detection, the limit of detection (the upper bound limit) must be declared as the result.



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The legislative limits in vegetable oils (EU 1259/2011) are as follows:

Sum of the 6 non-dioxin-like PCB's (PCB 28, PCB 52, PCB 101, PCB 138, PCB 153 and PCB 180):	40 µg/kg maximum
Dioxins:	0.75 ng/kg maximum
Sum of Dioxins and Dioxin-Like PCB's:	1.25 ng/kg maximum

### Polycyclic Aromatic Hydrocarbons (PAH)

Results	Benzo(a)pyrene	Sum of Benzo(a)anthracene, Chrysene, Benzo(a)pyrene and Benzo(b)fluoranthene
Crude Palm Oil	0.3 µg/kg	<1.2 µg/kg
Crude Palm Kernel Oil	<0.1 µg/kg	<1.0 µg/kg
RBD Palm Stearin	0.2 µg/kg	<1.1 µg/kg
RBD Palm Oil	0.2 µg/kg	<1.2 µg/kg

### **Analytical Results Certificate Numbers:**

**568038-420120,420119,420118,420117**

The legislative limits for these contaminants in vegetable oils (EU 835/2011) are as follows:

Benzo(a)pyrene: 2.0 µg/kg maximum

Sum of Benzo(a)anthracene, Chrysene, Benzo(a)pyrene and Benzo(b)fluoranthene: 10 µg/kg maximum

### Zearalenone analysis

Sample results below from Eurofins laboratories, SOFIA. Certificate numbers; AR-20-SF-018055-01, AR-20-SF-018054-01, AR-20-SF-018181-01, AR-20-SF-018180-01.

Analyte	LOQ (ug/kg)	RBD Palm stearin	CPO	RBD palm oil	CPKO
Zearalenone (ZON)	10	<LOQ	<LOQ	<LOQ	<LOQ

### Conclusion

All of the contaminant results are within current legislative limits on the samples supplied – note this is before these oils have been processed through the refinery.

These results verify our risk assessment that these products are all low risk for these identified contaminants.