

HACCP MANUAL - REFINERY

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Step	Description	Potential Hazard	Monitoring	Critical Limits	Corrective Action	Verification / Validation
Bleaching	Step in which Bleaching earth / clay is added	The survival of undesirable compounds that could result in refined oils with GE concentration higher than legal limits >1.0 GE*	Dosage rate	As per recipe set points in accordance to PLC settings.	Automatic hold, continually controlled by PLC Oil is tagged and requires analysis or further action.	Functional tests. Process validation document. Achieved Earth dosage can be calculated.
Deodorisation	Removal of volatiles by distillation, using high temperature, vacuum and sparge steam.	The survival of undesirable substances including pesticide residues and formation of GE via chemical reaction that exceeds legal limit.	Temperature, vacuum, cycle time, sparge steam flow	Temperature and cycle time as per deodoriser set in PLC. Minimum temp Crude oils 220, refined oil 190 Vacuum: 7 mbar maximum. Sparge Steam: 175kg / hour minimum.	Automatic hold/ tagging system of 'suspect' oil for analysis, continually controlled by PLC.	Calibration of monitoring devices and annual test of system.
Final Filtration	Stainless steel Filter strainer <3.5mm (with a1 micron Gaf Filter) used to remove any remaining particulate matter.	The survival of any physical debris and polymerised oil and other trace amounts of dirt >3.5mm	The differential pressure of each filter is monitored continually by PLC. Filter Unit PM check.	No Damage to Filter Strainer. (Maximum operating pressure of gaff bags is 50psi, manufacturer's recommendation for bag change is at a differential pressure of 35psi.) High Differential Pressure limit of 30psi built into the PLC control system.	Record inspection of strainer. The pump will stop automatically and alarms, controlled by PLC when differential pressure hits 30psi. Process Technician to investigate and report any abnormal findings through the Incident Reporting System (CPM 072).A)CS	Calibration of all applicable monitoring devices at the set frequency. No customer complaints or rejections.

*AOCS Cd 29c-13