Attachment I.8

- Environmental Consideration of BAT in G.BRUSS Processes

Implementation of BAT in the processes of G. BRUSS GmbH – Proposed A2-5 emission to Atmosphere

BAT Relevant to Gleitmo Coating Process	Consideration / Implementation of BAT G.BRUSS GmbH
BATNEEC GUIDANCE NOTE **Class 12.1 ORGANO-TIN COATING** **(V3.2006)**	
4.1 Elimination / substitution /	G. BRUSS is actively working with FUCHS Lubritech to develop the use of an alternative substance to Dibutyltin (K3) component in Gleitmo coating in light of R Phrases 60,68
4.2 Load Minimisation – Inventory control, optimisation of process	Kan-Ban system stock control, auto-dispense and auto-mix bunded unit in place, fluid dispensed per weight of parts
Coating applied by spray – airless system	Coating applied to parts by spray gun to closed washing unit – not airless. Initial set-up only due to low volume /low run-time expected. New vacuum drum coating system under review pending feasibility and cost consideration.
4.3 Containment of emissions Roofing and bunding of coating area / hardstanding, bunding and unloading areas to prevent surface and groundwater contamination from storage Overground pipelines and transfer lines. Chemical off-loading to avoid spillages - bunded area	Coating in self-contained coating 'hut', closed while process is running, closed and locked when not in use. Bunded dispenser / mixing / fluid storage unit, fluid off-load unit. No access to drains in process area, concreted floor Pipelines to dispenser unit at minimum from storage containers, overground and bunded.
Site organisation to ensure segregation of potentially contaminated surface waters from uncontaminated areas and waters	Open stormwater drains serving walkways outside coating area , rear yard provided with drain block to isolate sections if required
5.2 Releases to Air Odour nuisance beyond boundary prevented	Very low quantities of fluid dispensed, enclosed coating room while in operation. Activated carbon filtration for odour control in place, dispersion via 9.5m from ground level venting stack, low run-time – intermittent use of process (6 hrs maximum per week) predicted. No odour issues within site boundary.
6.2 Solid waste monitoring Recording in register of types, quantities, date and manner of disposal	Solid waste in form of clean-down rags, Nitrile gloves PPE, spent carbon filters, empty containers are recorded, appropriately labelled in suitable sealed container and transported for incineration by licenced contractor. Traceability records of transport and destruction maintained.
BAT Guidance Note Solvent Use in Coating, Cleaning and Degreasing (1st ed) 2008 **4.2 enclosed process**	Abatement of principle emission, washing drum operation and exhaust extraction
4.3.1 General Preventative Techniques - Monitoring of energy and raw material consumption, emissions and waste	All consumables monitored, kan-ban system, waste and emissions records maintained

Generation	
4.3.1.1 Minimisation of material consumption	3 component coating – use of auto-dispense of fluid using programmable scales, auto mixing of components and fixed pipework for coating supply to dispense/mixing unit
4.3.1.2 Minimisation of Energy Consumption	energy efficient equipment high efficiency motors installled, appropriate sizing to small batch quantities.
4.3.2.3 Alternative Processes for Coating	High solids coatings. • These coatings still contain solvent but solid content is > 65%. Alternative to K£ Dibutyltin being trialed at FUCHS Lubritec, high viscosity alternative
4.3.2.4 Alternative Processes for Cleaning and Degreasing	Manual cleaning - Using of spray bottle with rags, wipes in place. Carbon dioxide (dry ice) cleaning – this method can be trialled at G. BRUSS to remove grease from drum.
4.3.3 Techniques for containment	in-line mixing for 2-component coatings in place. Pumping and dispensing controls on dispenser/mixer unit. Use of covers on containers before and after use and during handling/transport in place. Adequate solvent storage - secure, impervious, suitably bunded, away from drains. Indoor day store for coatings. Enclosed coating room.
4.3.5.1 Treatment of Air Emissions	Carbon adsorption currently in place. Running at 40% efficiency. Alternative methods are being investigated to improve effectiveness of abatement. Absorption of VOC using liquid is an option for investigation as is effective for low volume flow and high VOC concentrations. Q4 2014 timeframe for improved abatement investigation.
4.3.6 Techniques for Appropriate Disposal	Residual hazardous waste is disposed off-site by incineration planned for solid waste from coating process.

Additional Consultation of BAT in G.BRUSS processes

BREFF 2003 Waste Water/Waste Gas Chemical Sector	
Recovery and Abatement Techniques for Particulates **(ESP) Electrostatic Precipitators**	G.BRUSS main emissions to atmosphere A2-1 to A2-4 are equipped with ESP units. The abaement has been in place since 2001.
BREFF 2009 Energy Efficiency	
Upgrade Compressor units Recoverywaste heat for use in other functions	Q4 2014 an upgraded copmpressor unit to be installed, associated heat recovery system to be used to heat spaces currently heated by 3 off boiler units. Fuel oil reduction.