

**Environment Agency,
Permitting Support Centre,
Quadrant 2,
99 Parkway Avenue,
Parkway Business Park,
Sheffield,
S9 4WF.**

**Ref MUE 011
Permit No. EPR/BJ9843IH/V010
03 April 2020**

BAT Summary

As part of the refinery application process, Mueller Europe has carried out a BAT assessment using the EU document for establishing BAT conclusions (2010/75/EU), with reference to the annex – BAT conclusions for the non-ferrous metals industries.

In general, as the company already operate a casting facility, the handling, moving and storage of “scrap” material in the form of tube, wire bar etc. will be the same, and will be controlled under our current operational conditions. These are found within our EMS (14001: certified).

The noise control requirements will be developed based on the noise assessment (as attached in pack).

The new furnace will have an associated filter plant as outlined within the application documents, and this will have continuous monitoring for dust as with our current plant (Mcert equipment), on the final emission stack. The stack itself will also have a monitoring platform inline with the M1 requirements., and emissions will be monitored as out lined in BAT10.

Water emissions from the quench system will be covered by a consent from Severn Trent and subjected to any permitting requirements as with our current systems. All cooling towers will be registered with Wolverhampton city council and fall within our current water treatment procedures under the guidance of L8. Based on a full review of the above document we identified several sections that are directly related to the application and processes, the full assessment can be found in the appendix document to this summary. Below is a summary table for key items for ease of reference.

BAT No.	Technique used
BAT 2	We have an internal monitoring system for energy use as outlined in our EMS. This includes the MCP. Data analysis is published quarterly in internal management reports and annually as part of our IPC permit reporting requirements.
BAT 3	Monitor the critical process parameters of the air emission abatement plant such as gas temperature, reagent metering, pressure drop, ESP current and voltage, scrubbing liquid flow and pH and gaseous components (e.g. O2, CO, VOC)
BAT 4	Service checks by manufacture will be carried out on annual basis. Bag house checks will be undertaken every 2 hours by cast team for Con Pressure, Differential pressure, Cooler Temp, cleaner temp, automatic system also installed on equipment as outlined in operational manual.

BAT 5	The emissions from the furnace will be collected by the system filtration unit consisting of an after burner and bag house. There are no detectable dust emissions from the scrap handling as all material received will be dry bright wire, tube, electrical bus-bar and general solid copper scrap. This material is solid clean material and will be defined within our raw material specification requirements. Water emission from the quench will be controlled under our Seven Trent consent. CME equipment to be used for online continuous dust monitoring (see BAT 10)
BAT 6	The EMS has a register of environmental aspects which in principle is a risk assessment. Each aspect is assessed on its environmental impact and scored accordingly. Based on these targets are set in the environmental action plan during the company annual review by the senior management team. There is also an ongoing "live" action plan which is reviewed at least once a month. Should there be any external complaints (none in the past 5 years) or any breaches of the permit, a full investigation will be carried out with the issuing of a system N/C. The documentation system calls for both corrective and preventative actions to be highlighted and reported on. There is sufficient evidence from past investigations to demonstrate that the system works. A full copy of the aspects register is available for inspection.
BAT 7	Place the longitudinal axis of the heap parallel to the prevailing wind direction in the case of outdoor storage, all material is to be stored in high walled solid floor bunkers.
BAT 8	Minimise material transfers between processes. Covered conveyor to handle non-dust-forming solid materials, is within the building. Regular housekeeping program for the storage yard area.
BAT 10	Emission will be tested as per the requirements of our IPPC permit by Mcets company to the standards required and within the specified time scales. The results of the monitoring are reported to the senior management team in the monthly reports as well as reviewed within the company annual review document. Any deviation from the permitted levels will be forwarded to the senior management team and actions taken. Copies of the report will be held on file for inspection by all managers. The refinery management team will be actively involved in the testing and result analysis process. Data analysis of the results form part of the annual review process and document. Dust will be monitored on a continuous basis using a Combi Probe with MCERTS certified forward scatter particulate analyser for simultaneous measurements of: Dust concentration, gas velocity, pressure and temperature.
BAT 13	Mueller Europe have a limit of 100mg/m ³ for Nox from the current filter plant. Based on the data from the new supplier the new system will not exceed this limit using A SNCR DeNOX process is used to reduce nitrogen oxides (NOX, chiefly NO) to gaseous nitrogen in flue gas. Reduction is obtained by injecting ammonia solution inside the flue gas stream. The main parameters that influence the efficiency of the DeNOx process are the flue gas temperature and the distribution of reagent in the gas. Full details are found in the plant operation documentation.
BAT 18	All manufacturing equipment is within the building, filter plant to have noise covers on fans, further review required during commissioning. Shredder only used during day time shift, during the initial charging process. Full noise assessment has been carried out and the report attached to the final submission document MUE 012
BAT 19	Ensure all access door are closed during cast production. Ensure all scrap is clean and free from contamination. Slag and dross produced as a by-product of the refinery system are not odorous and stored in containers. Minimal use of any odorous materials. there are Internal walls within the building to reduce any potential releases.
BAT 20	The refinery will allow for the use of lower grade scrap material to be used. However, the

	material will be free from drawing oil, lubricants and dust.
BAT 25	No pre-treatment of any material is undertaken in the process.
BAT 26	Enclosed building in combination with other techniques to collect the diffuse emissions such as hoods, burner controls. All diffused emissions from the melting & refining plant will be captured by hoods and extraction equipment and sent to the bag-house filtration system.
BAT 37	Good housekeeping of solid copper materials. Material is delivered in solid form and charged into furnace via either a shredder or direct conveyor. No pre-treatment carried out. Swarf is sent off site for compacting into bales. No metering, mixing or blending is carried out on site. Regular EA site visits have raised no storage concerns.
BAT 45	Copper raw material specification issued to all suppliers, ELV of new process will meet the BAT-AEL limit of 5mg/m3. Bag house in use. Emission monitoring will take place in accordance with the permit conditions, along with a continuous particulate monitoring using a Combi Probe with MCERTS certified forward scatter particulate analyser for simultaneous measurements of: Dust concentration, gas velocity, pressure and temperature.
BAT 46	VOC limit will be below the BAT limits = 50 mg/m3. Only solid material will be charged into the furnace. No swarf, turnings, scalps etc will be used. Oxidisation of carbon monoxide and VOC's will take place in the afterburner system. The system also has a filtration system with an Injection of adsorbent in combination with a bag filter.
BAT 48	Select and feed the raw materials according to the furnace and the abatement techniques used. Dioxin emissions controlled by activated carbon lime in baghouse. There is also a Post-combustion afterburner prior to the bag-house designed to meet the BAT-AEL PCDD/F (ng I-TEQ/Nm ³) of ≤ 0,1. Testing will be carried out over 3 x 6 hours twice per year or as prescribed in the permit. The system also has a filtration system with an Injection of adsorbent (lime and activated carbon) in combination with a bag filter. The combined filtration plant to be installed is considered BAT compliant.
BAT 54	No recoverable waste. All wastes in the form of slags, dross, copper blocks and other metallic by-products will be sold for recycling. All waste monitored on a monthly basis and reviewed by senior management team -quarterly data sent to the EA.

The above table and its associated document have been compiled in conjunction with the project team and the information supplied by the plant manufacture. All steps will be taken to comply with the BAT requirements and subsequent requirements laid down in the issued permit.

Regards,

Jeff Rogers
Quality Engineering Manager
Mueller Europe Ltd