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Best Available Techniques
UK BAT

UK Best Available Techniques

Draft Interpretation Guidance and Supporting Information for the Ferrous Metals Processing (Galvanizing) Sector

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Supporting Information and Interpretation Document

Following the review of the ferrous metals processing (galvanizing) (FMPG) sector the Technical Working Group (TWG) has reached consensus on BAT for the UK, with no alternate positions.

This document is a summary of the process followed to develop Best Available Technique Conclusions (BATC) in the UK for the FMPG sector. It includes supporting information discussed by the Technical Working Group (TWG) and interpretation on a number of matters raised as the TWG members discussed and agreed the Formal BATC.

The agreed BATC are based on the outputs from the EU BREF process, which UK representatives participated in up to 31 January 2020, along with comments and evidence provided by the TWG members. This includes evidence available from current industry practice, sector activities and regulatory submissions within a UK context. Original comments made by the UK Shadow TWG were also reviewed and reconsidered as part of the development of BAT for the UK.

Outcomes from the UK BAT Process

Implementation of the BAT Conclusions for the FMPG sector will support the UK in meeting global climate and environmental challenges through driving environmental improvements whilst allowing sustainable business development and a level playing field.

The BAT Conclusions will introduce updated techniques through which emissions can be reduced or minimised. They will also introduce new evidence based BAT-AEL's, reducing emissions from the sector, as part of the continuous process of improvement through the development and review of BAT in the UK.

UK BAT Process

The process for developing BAT for the UK was set up in 2022. This involves the organisation of an information exchange between UK Government, Devolved Administrations, Regulators, industry and environmental non-governmental organisations on Best Available Techniques (BAT) used to control industrial pollution.

The process is mandated by the Environment and Wildlife (Legislative Functions) (EU Exit) Regulations 2019, specifically Part 3, with the power to make decisions on BAT Conclusions for the purposes of Directive 2010/75/EU as enabled by section 8(1) of, and paragraph 21(b) of Schedule 7 to, the European Union (Withdrawal) Act 2018(1).

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The BAT conclusions cover large-scale agro-industrial activities included in Annex I to the Industrial Emissions Directive (2010/75/EU). They comprise a short description of the best available techniques identified, their applicability and associated emission or consumption levels.

The definition of BAT in UK law remains unchanged following EU exit and it forms part of our retained EU law alongside all existing BATC that were developed at the EU level (largely on a sector-by-sector basis). The BAT regime operates on the same basis of a transparent, collaborative, flexible, evidence led process that safeguards and builds on the high levels of environmental protection already in place across the UK.

After publication as a Statutory Instrument in the UK, the BATC will provide the reference for setting emission limit values and issuing operating permits for in scope industrial installations in the UK.

The BATC associated with this paper are one of four carried out in tranche 1 of the UK BAT process.

Scope of review

The FMPG BATC were formed when the FMP scope was split into 2 separate parts (galvanizing and forming) to match the UK context in which they will apply.

The scope was based on part of the EU BREF review for ferrous metals processing of which the UK was part. All the references to the relevant UK legislation, are set out in the formal draft of the UK BAT Conclusions.

The UK batch galvanizing BAT Conclusions only include those activities associated with the batch galvanizing elements of the scope.

In the UK the batch galvanizing activities have been considered separately and are a separate BAT Conclusions document because in England and Wales, batch galvanizing is regulated by local authorities, whereas all the installations covered by the FMPF BAT conclusions are regulated by the National Regulator. Batch galvanizing in Scotland and Northern Ireland is regulated by the National Regulator, however batch galvanizing currently also has its own separate guidance.

It should be noted that BAT Conclusions apply without prejudice to other legislation, which may be relevant, e.g. on the registration, evaluation, authorisation and restriction of chemicals (REACH), or on the classification, labelling and packaging (CLP) Regulation.

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Overview of Regulated Installations in the UK

Hot dip or batch galvanizing is the process of coating iron or steel with a layer of zinc by immersing the metal in a bath of molten zinc at a temperature of around 450 °C. During the process, a metallurgically bonded coating is formed which protects the steel from harsh environments. Batch galvanizing is a service industry to the steel fabrication sector.

The main steps in the galvanizing process are:

- Cleaning, degreasing and chemical cleaning of the metal surface
- Fluxing, helps to wet the surface of the steel
- Galvanizing, immersion of steel into a bath of molten zinc
- Post treatment (at some installations)

The cleaning, pre-treatment and post treatment steps involve immersing the workpiece(s) in treatment vats, e.g. acid pickling. Batch galvanizing sites come within the scope of these BAT conclusions if either of the following thresholds are exceeded:

- an input of more than 2 tonnes of crude steel (feedstock) per hour, or
- the volume of the treatment vats exceeds 30 m^3

Based on the scope of the review, in 2023, the ferrous metals processing (galvanizing) sector had 47 permitted installations in the UK.

The sites are shared across the UK in the following way:

England – 34 permitted sites

Wales – 4 permitted sites

Scotland – 4 permitted sites

Northern Ireland – 5 permitted sites.

Batch galvanizing installations operating below both of the above thresholds are not within scope but may still be subject to regulation as a Part B activity.

Key Environmental and Technical Issues

The key environmental impacts were discussed and agreed at part of the EU process to develop BAT which included representatives from the UK. The published EU BREF contains full details of the processes and techniques used to minimise pollution from the activities in scope of this review. The evidence collected as part of the EU Process was discussed in a UK context with additional data and information provided for specific issues in the subsequent development of BAT for the UK. A record of the main points is presented below to provide further context and interpretation guidance for the BAT conclusions agreed by the TWG.

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These BAT conclusions only concern batch galvanizing. For UK BATC relating to the ferrous metals processing sector, including, hot rolling, cold rolling, wire drawing and continuous hot dip coating please see the separate BATC for this sector.

The UK BAT conclusions for the Ferrous Metals Processing (Galvanizing) Sector will replace the EU Reference Document on Best Available Techniques in the Ferrous Metals Processing Industry – December 2001 and the Secretary of State's guidance document SG5 from 2006.

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Interpretation and implementation

Climate change and circular economy

The outline draft UK BATC for Tranche 1 contained 3 examples of BAT to ensure operators of permitted installations were able to identify and operate in a manner which supported the move to a circular economy as well as adapting to and mitigating the effects of climate change. Following the review of the outline draft, these 3 draft BATC were removed.

They were not part of the EU BAT conclusions, and their removal was a policy decision of the Standards Council. The Standards Council remains of the view that addressing circular economy and climate change are BAT and should be taken forward through the BAT system but accepted that these generic BAT proposals were not integrated into the evidence collection and subsequent BATC sufficiently and so instructed the TWG Chair to remove them from all Tranche 1 sectors BATC. The Standards Council will review the approach, consulting stakeholders with revised proposals for future tranches.

Clarification of scope and appropriate techniques

The draft BATC were produced by disaggregating the EU BATC. When disaggregating the BATC, a number of techniques generic to other parts of the ferrous metals sector were inadvertently included. Those techniques not relevant or applicable to batch galvanizing were removed after discussion and agreement by the TWG.

In addition, a number of techniques were added along with some additional monitoring to various BATC supported by the TWG members based on requirements of the current sector guidance document SG5, which were not part of the EU BATC. These are included below to support interpretation and implementation of the BATC in the UK.

BAT 18: Water efficiency plan

A number of additional techniques have been included on rainwater and surface water runoff. These are carried forward from AQ20(07), which was a supplementary note to SG5 dealing with historic issues of surface water contamination with zinc and ammonia at batch galvanizing sites. They were discussed and agreed by the TWG members for inclusion in the BATC.

BAT 7: Monitor channelled emissions to air

Monitoring of dust emissions from other activities such as shot blasting were discussed. The TWG reviewed the evidence for emissions and decided that a BAT-AEL should not be included as insufficient evidence existed to support this. Emissions are not expected to be significant as reflected by the fact that it was not in scope of the EU BAT conclusions.

BAT 20: Residues from hot dipping

The recovery of zinc using on site furnaces was discussed by the TWG. These are operated by some batch galvanizers. Emissions from these are not in the scope of the BATC. Small zinc recovery furnaces could be part of the installation as a directly associated Part B activity. Through the implementation of the BATC in permit reviews operators and regulators should ensure that activities are correctly categorised and appropriate permit conditions are included.

BAT 25: Emissions to air from pickling and stripping

The TWG discussed the priority assigned to the techniques on preventing emissions of HCl from pickling tanks. Based on the current good practice described by the TWG the priority of the techniques was amended. A combination of limiting acid concentration and operating at ambient temperatures should make fugitive releases of HCl insignificant. If, through more frequent checking of workplace for occupational health and safety, HCl concentrations indicated that fugitive HCl emissions were not insignificant, lip extraction could be retrofitted.

The consequence of this change was that the enclosure or fitting of lip extraction to tanks operating at ambient temperatures with dilute acids should not routinely be required.

BAT 26: Emissions to air from hot dipping

Emissions of dust from hot dipping was discussed by the TWG. They reviewed the data collected from UK installations on these emissions. The data showed that many installations were able to achieve 5 mg/Nm^3 without the use of a bag filter. It was also noted by the TWG that some plants with emissions above 5 mg/Nm^3 have low mass emissions.

Based on this evidence it was felt that mandating bag filters in such cases was disproportionate. The priority assigned to the techniques was therefore amended and a footnote added to the BAT-AEL table which explained that for existing plants without bag filters, the upper value of the BAT-AEL range could be increased to 10 mg/Nm^3 where the mass emission did not exceed 200 g/hr.

BAT 17: Material efficiency in spent acid recovery

It was noted that BAT 17 states that "The neutralisation of spent pickling acids or the use of spent pickling acids for emulsion splitting is not BAT" but accepts in the applicability statement that this may exceptionally take place where no alternative is available. The TWG recognised that this situation is likely to occur at batch galvanizing sites due to lack of availability of treatment and

recycling/reuse options. At the point of implementation, this would need to be discussed and agreed locally between the regulator and operator on a case-by-case basis.

Regulatory consistency

The membership of the TWG was balanced across industry and regulatory representatives. In discussions they raised an issue of consistency interpretation across different regulatory bodies during permit reviews. This was primarily based on the development of the BATC which are less prescriptive than the current guidance for batch galvanizing.

As an implementation issue the appropriate regulatory bodies will need to consider how to ensure consistency of interpretation and implementation both during permit reviews and compliance assessment. It was noted that routes currently exist to support consistency of interpretation such as the Environment Agency's Local Authority Unit was established to provide permitting support to Local Authorities in England and Wales.

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Consensus Agreement to the BATC

At the conclusion of the TWG, after a final review of the BATC text, no alternate positions were submitted by TWG members and the BATC were agreed by consensus supported by this supplementary information and interpretation guidance.

Public consultation

This is a place holder.

[A summary of any responses and the subsequent outcomes will be made here. This will support operators and regulators when implementing the final BATC and in the work of any future TWG]

Formal adoption

This is a place holder.

[A statement will be made here in line with the final adoption and publication of the SI for these BATC.]