Implementing the EU BAT Conclusions in Environmental Permitting of Galvanizing Plants

Murray Cook

European General Galvanizers Association
mcook@egga.com

EGGA
GALVANIZING EUROPE

EGGA
GALVANIZING EUROPE

The Federation of National Galvanizing Industry Associations in Europe

14 Associations
21 Countries

AUSTRIA
Fachverband der Eisen-und Metallwarenindustrie Österreichs

BELGIUM, NETHERLANDS & LUXEMBOURG
Zink Info Benelux

CZECH & SLOVAK REPUBLICS
ACSZ - Czech and Slovak Galvanizers Association

FRANCE
Galvazinc Association

GERMANY
Industrieverband Feuerverzinken eV

GREECE
Hellenic Galvanizers Association

HUNGARY
Magyar Tüzihorganyzók Szövetsége

ITALY
Associazione Italiana Zincatura

NORDIC COUNTRIES
Nordic Galvanizers

POLAND
Polskie Towarzystwo Cynkownicze

ROMANIA
ANAZ

SPAIN
Asociación Técnica Española de Galvanización

TURKEY
GALDER

UK & IRELAND
Galvanizers Association

EGGA
GALVANIZING EUROPE

Associate Members

Main Suppliers to the Industry
...and Intergalva Partners

BOTTARO
WIRE POWER SINCE 1956

ATUNKİMYA
HOT DIP GALVANIZING CHEMICALS

WORLD LEADERS IN HASCO THERMIC GALVANIZING PLANT

WESTECH
WESTERN TECHNOLOGIES

GIMECO

W. PILLING

CHE
I. Evensen Industriovner
www.che.no

KOERNER kvk

SCHEFFER
Leading galvanizing technology.

IMR METAL POWDER TECHNOLOGIES GmbH
www.imr-group.com

ANI METAL
Engineered for Galvanizing

www.herwig-gmbh.com
Galvanizing Technologies

rezinal

METALSIDER2

EverZinc
The Global Zinc Expert

Assembly 2023
Salzburg
19-21 June 2023

19-20 June: Conference

21 June: Plant visits to:

- OTN
- Zinkpower
- Collini

Platinum Sponsors

Wiehart ZINKOXID

W. PILLING

KOERNER KK

SCHEFFER
Leading galvanizing technology.

Gold Sponsors

JASPER

ANI METAL
Engineered for Galvanizing

Register at:
www.galvanizingeurope.org

EGGA
GALVANIZING EUROPE

This Seminar Will Cover…

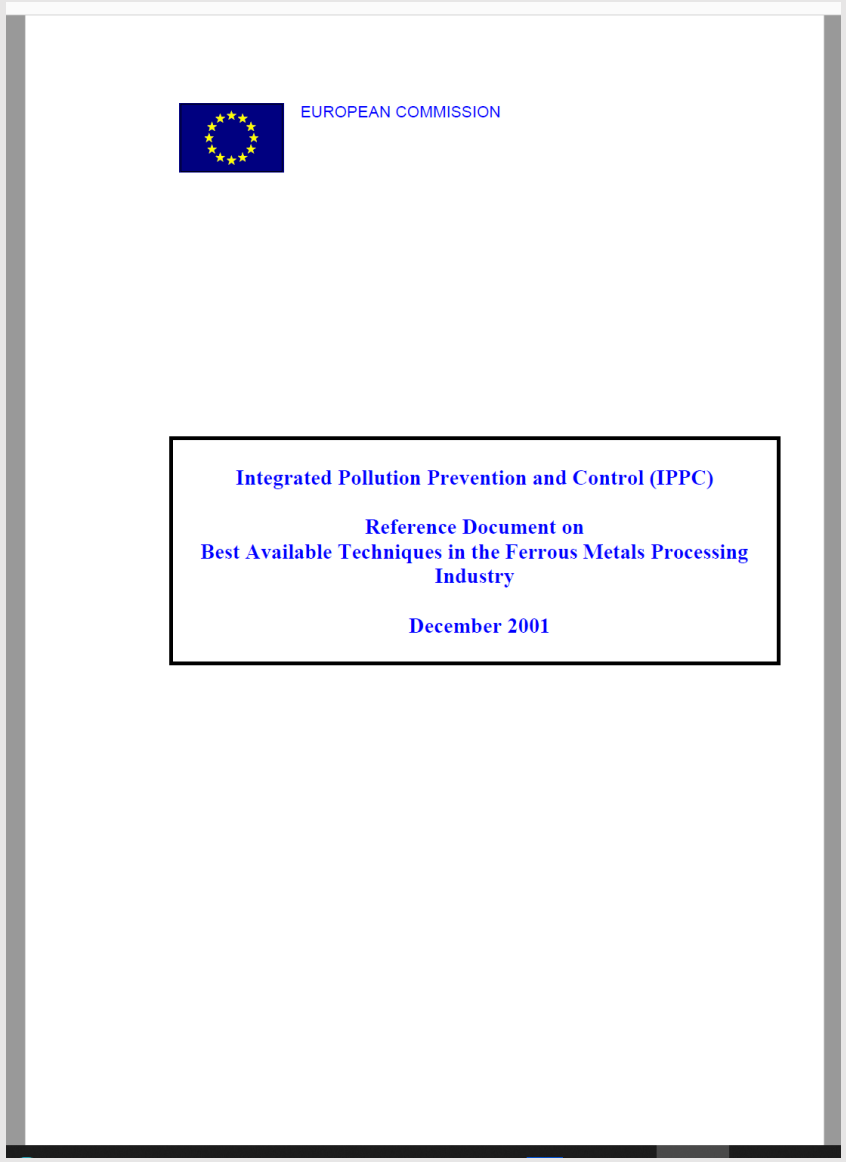
- ✓BACKGROUND TO THE **LEGISLATION** & WHAT IS NEW?
- ✓FERROUS METAL PROCESSING **'BREF' AND 'BAT' CONCLUSIONS** – DEVELOPMENT
- ✓HOW TO FIND **WHAT IS RELEVANT** TO BATCH GALVANIZING?
- ✓BREF DATA COLLECTION – **BASIS FOR THE BAT-AELS AND BAT-AEPLS**
- ✓**BAT-AELs AND BAT-APELs** FOR BATCH GALVANIZING
- ✓IN DETAIL – HCL EMISSIONS FROM **PICKLING**
- ✓IN DETAIL – DUST EMISSIONS FROM **GALVANIZING BATH**
- ✓"**APPLICABILITY**" CONCEPTS
- ✓**MONITORING** REQUIREMENTS
- ✓BAT REQUIREMENTS RELATED TO **MANAGEMENT SYSTEMS**
- ✓ADDITIONAL POINTS *(TIME PERMITTING)* / Q & A

EGGA GALVANIZING EUROPE

Background to the Legislation & What is new?

Boring….but important…

Environmental Permitting of Galvanizing Plants: IPPC Situation in 2001 - 2022


EUROPEAN COMMISSION

Integrated Pollution Prevention and Control (IPPC)

Reference Document on
Best Available Techniques in the Ferrous Metals Processing Industry

December 2001

- Basis – 1996 'IPPC Directive'
- 'BREF' of 538 Pages
- For INFORMATION EXCHANGE between EU Member States

- Permit Requirements Set at National (Member State) and local level

- High level of flexibility in emission limits and required pollution control equipment

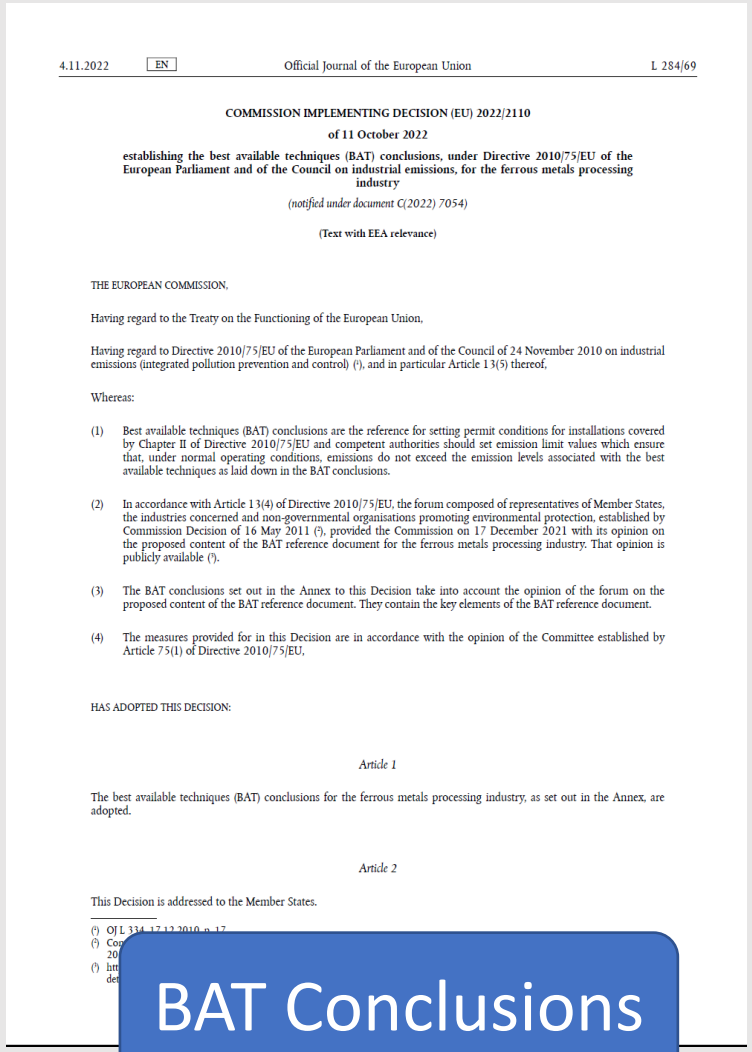
- Emission levels given in the BREF for any Best Available Technology were <u>not legally binding</u> on the Member State or the industry

EGGA GALVANIZING EUROPE

Environmental Permitting of Galvanizing Plants:
IED New Situation – from November 2022

BREF

- Basis – 2010 'Industrial Emissions Directive'
- 'BREF' (850 Pages)
- **BAT Conclusions (65 Pages) are <u>legally binding on Member States</u>**



4.11.2022 EN Official Journal of the European Union L 284/69

COMMISSION IMPLEMENTING DECISION (EU) 2022/2110

of 11 October 2022

establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the ferrous metals processing industry

(notified under document C(2022) 7054)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (1), and in particular Article 13(5) thereof,

Whereas:

(1) Best available techniques (BAT) conclusions are the reference for setting permit conditions for installations covered by Chapter II of Directive 2010/75/EU and competent authorities should set emission limit values which ensure that, under normal operating conditions, emissions do not exceed the emission levels associated with the best available techniques as laid down in the BAT conclusions.

(2) In accordance with Article 13(4) of Directive 2010/75/EU, the forum composed of representatives of Member States, the industries concerned and non-governmental organisations promoting environmental protection, established by Commission Decision of 16 May 2011 (2), provided the Commission on 17 December 2021 with its opinion on the proposed content of the BAT reference document for the ferrous metals processing industry. That opinion is publicly available (3).

(3) The BAT conclusions set out in the Annex to this Decision take into account the opinion of the forum on the proposed content of the BAT reference document. They contain the key elements of the BAT reference document.

(4) The measures provided for in this Decision are in accordance with the opinion of the Committee established by Article 75(1) of Directive 2010/75/EU,

HAS ADOPTED THIS DECISION:

Article 1

The best available techniques (BAT) conclusions for the ferrous metals processing industry, as set out in the Annex, are adopted.

Article 2

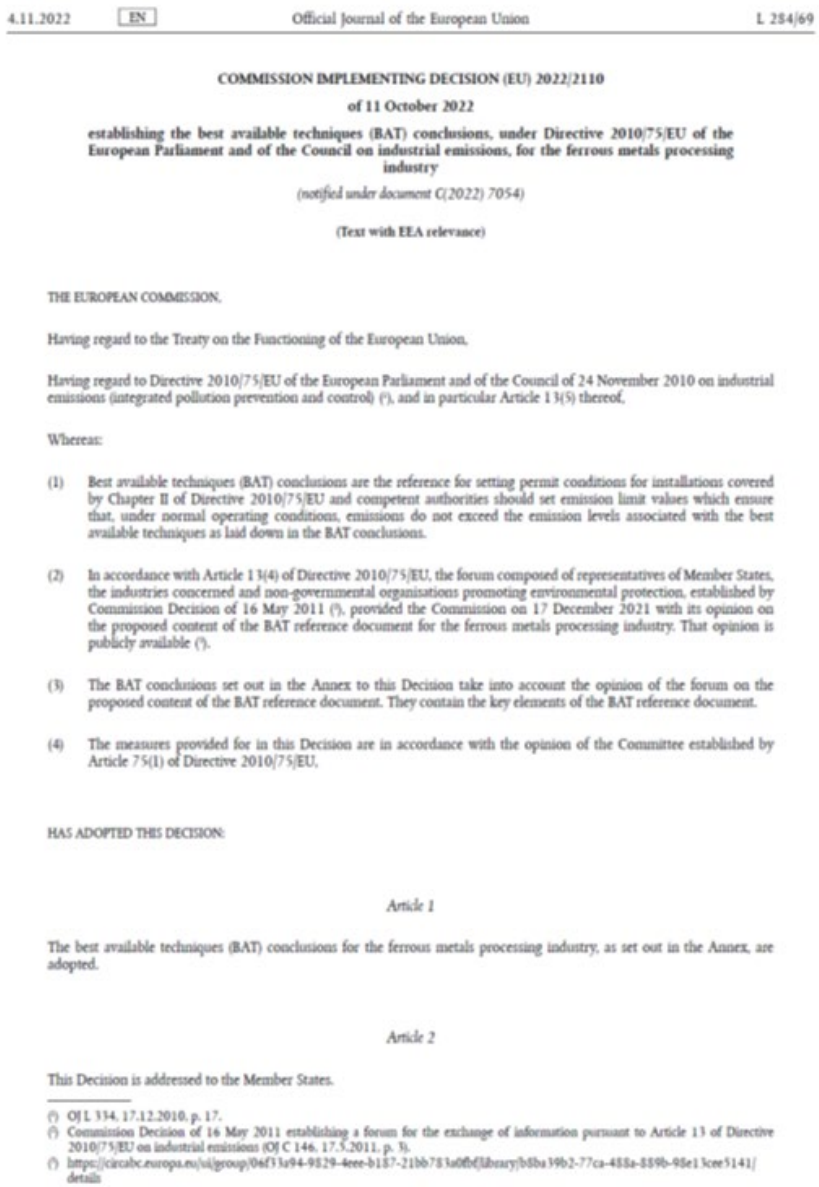
This Decision is addressed to the Member States.

(1) OJ L 334, 17.12.2010, p. 17.

BAT Conclusions

EGGA GALVANIZING EUROPE

FMP BAT Conclusions published November 2022



4.11.2022 EN Official Journal of the European Union L 284/69

COMMISSION IMPLEMENTING DECISION (EU) 2022/2110

of 11 October 2022

establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the ferrous metals processing industry

(notified under document C(2022) 7054)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (1), and in particular Article 13(5) thereof,

Whereas:

(1) Best available techniques (BAT) conclusions are the reference for setting permit conditions for installations covered by Chapter II of Directive 2010/75/EU and competent authorities should set emission limit values which ensure that, under normal operating conditions, emissions do not exceed the emission levels associated with the best available techniques as laid down in the BAT conclusions.

(2) In accordance with Article 13(4) of Directive 2010/75/EU, the forum composed of representatives of Member States, the industries concerned and non-governmental organisations promoting environmental protection, established by Commission Decision of 16 May 2011 (2), provided the Commission on 17 December 2021 with its opinion on the proposed content of the BAT reference document for the ferrous metals processing industry. That opinion is publicly available (3).

(3) The BAT conclusions set out in the Annex to this Decision take into account the opinion of the forum on the proposed content of the BAT reference document. They contain the key elements of the BAT reference document.

(4) The measures provided for in this Decision are in accordance with the opinion of the Committee established by Article 75(1) of Directive 2010/75/EU,

HAS ADOPTED THIS DECISION:

Article 1

The best available techniques (BAT) conclusions for the ferrous metals processing industry, as set out in the Annex, are adopted.

Article 2

This Decision is addressed to the Member States.

(1) OJ L 334, 17.12.2010, p. 17.
(2) Commission Decision of 16 May 2011 establishing a forum for the exchange of information pursuant to Article 13 of Directive 2010/75/EU on industrial emissions (OJ C 146, 17.5.2011, p. 3).
(3) https://circabc.europa.eu/ui/group/06f13a94-9829-4eee-b187-21bb781a0fbf/library/b8ba39b2-77ca-488a-889b-98e13cee5141/details

Obligations for Member States / National Authorities

BAT and BAT Associated Emission Limits (BAT-AELs)

NEW Plant Permits: IMMEDIATE

EXISTING Plant Permits: MUST BE REVIEWED BY 4/11/2026 LATEST

EGGA GALVANIZING EUROPE

Official Journal
of the European Union
L 284
English edition Legislation
Volume 65
4 November 2022

KOMMISSIONENS GENOMFÖRANDEBESLUT (EU) 2022/2110

av den 11 oktober 2022

om fastställande av BAT-slutsatser för industri för behandling av järnbaserade metaller, i enlighet med direktiv 2010/75/EU om industriutsläpp

(delgivet med nr C(2022) 7054)

(Text av betydelse för EES)

EUROPEISKA KOMMISSIONEN HAR ANTAGIT DETTA BESLUT

med beaktande av fördraget om Europeiska unionens funk

med beaktande av Europaparlamentets och rådets direkt
(samordnade åtgärder för att förebygga och begränsa föror

av följande skäl:

(1) Slutsatserna om bästa tillgängliga teknik (*BAT-slutsa*
för anläggningar som omfattas av kapitel II i direk
utsläppsgränsvärden som säkerställer att utsläj
utsläppsnivåer som motsvarar bästa tillgängliga tek

(2) Det forum bestående av företrädare för medlemssta
nisationer som inrättats genom kommissionens be
enlighet med artikel 13.4 i direktiv 2010/75/EU sit
referensdokumentet för industri för behandling av j

(3) De BAT-slutsatser som återfinns i bilagan till detta beslut beaktar yttrandet från forume
i BAT-referensdokumentet. De innehåller de viktigaste delarna i BAT-referensdokumen

(4) De åtgärder som föreskrivs i detta beslut är förenliga med yttrandet från den ko
artikel 75.1 i direktiv 2010/75/EU.

HÄRIGENOM FÖRESKRIVS FÖLJANDE.

Artikel 1

Härmed antas de BAT-slutsatser för industri för behandling av järnbaserade metaller som ang

KOMMISSION TÄYTÄNTÖÖNPANOPÄÄTÖS (EU) 2022/2110,

annettu 11 päivänä lokakuuta 2022,

teollisuuden päästöistä annetun Euroopan parlamentin ja neuvoston direktiivin 2010/75/EU mukaisten parasta käytettävissä olevaa tekniikkaa (BAT) koskevien päätelmien vahvistamisesta rautametallien jalostusteollisuutta varten

(tiedoksiannettu numerolla C(2022) 7054)

(ETA:n kannalta merkityksellinen teksti)

KOMMISSIONENS GENNEMFØRELSESAFGØRELSE (EU) 2022/2110

af 11. oktober 2022

om fastsættelse af BAT (bedste tilgængelige teknik)-konklusioner i henhold til Europa-Parlamentets og Rådets direktiv 2010/75/EU om industrielle emissioner for jernmetalforarbejdningsindustrien

(Meddelt under nummer C(2022) 7054)

(EØS-relevant tekst)

EU INDUSTRIAL EMISSIONS DIRECTIVE (2010) ANNEX I

ANNEX I

Categories of activities referred to in Article 10

2. Production and processing of metals

2.1. Metal ore (including sulphide ore) roasting or sintering

2.2. Production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exce… 2,5 tonnes per hour

2.3. Processing of ferrous metals:

(a) operation of hot-rolling mills with a capacity exceeding 20 tonnes of crude steel per hour;

(b) operation of smitheries with hammers the energy of which exceeds 50 kilojoule per hammer, where the calorific power used exceeds 20 MW;

(c) application of protective fused metal coats with an input exceeding 2 tonnes of crude steel per hour.

2.4. Operation of ferrous metal foundries with a production capacity exceeding 20 tonnes per day

2.5. Processing of non-ferrous metals:

(a) production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes;

(b) melting, including the alloyage, of non-ferrous metals, including recovered products and operation of non-ferrous metal foundries, with a melting capacity exceeding 4 tonnes per day for lead and cadmium or 20 tonnes per day for all other metals.

2.6. Surface treatment of metals or plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 m^3

Confusion!!

FMP BREF

>2 TONNES OF STEEL / HOUR

STM BREF

> 30 m^3 of total treatment tanks

EU BAT CONCLUSIONS FOR FERROUS METAL PROCESSING (2022)

ANNEX

1. BEST AVAILABLE TECHNIQUES (BAT) CONCLUSIONS FOR THE FERROUS METALS PROCESSING INDUSTRY

SCOPE

These BAT conclusions concern the following activities specified in Annex I to Directive2010/75/EU:

2.3. Processing of ferrous metals:

(a) operation of hot rolling mills with a capacity exceeding 20 tonnes of crude steel per hour;

(c) application of protective fused metal coats with an input exceeding 2 tonnes of crude steel per hour; this includes hot dip coating and batch galvanising.

2.6. Surface treatment of ferrous metals using electrolytic or chemical processes where the volume of the treatment vats exceeds 30 m^3, when it is carried out in cold rolling, wire drawing or batch galvanising.

GOOD: CLARITY THAT ONLY THE FMP BAT CONCLUSIONS APPLY TO BATCH GALVANIZING PLANTS

BAD: THRESHOLD FOR ‘SURFACE TREATMENT’ TO BE APPLIED FOR BATCH GALVANIZING PLANTS

EGGA GALVANIZING EUROPE

The new Ferrous Metal Processing BREF and BAT Conclusions - Development

Understanding the new legislation…

EGGA
GALVANIZING EUROPE

5 Sectors of the “Ferrous Metal Processing” (FMP) BREF

Hot Rolling

Cold Rolling

Wire Drawing

Continuous Hot Dip Coating (sheet and wire)

Batch Galvanizing (including tubes)

EGGA GALVANIZING EUROPE

Terminology Explained

Acronym	Full Term	Legal Status
BAT-AEL	**B**est **A**vailable **T**echnique – **A**ssociated **E**mission **Limit** Example: Dust emissions to Air (mg/Nm^3)	**Mandatory** for National Government to set the emission limit in the plant's permit within this range of limit values
BAT-AEPL	**B**est **A**vailable **T**echnique – **A**ssociated **E**nvironmental **P**erformance **Level** Example: Energy use (kWh/tonne)	**Optional** for National Government to set performance level in the plant's permit using this range of performance values

BAT-AELs and **BAT-AEPLs** are always given as a range of values to represent possible values for different techniques used in well-performing plants

More Batch Galvanizing BATs in the ‘General’ section than in the ‘Batch Galvanizing’ section

	All FMP Sectors	Batch Galvanizing only
Main BREF: Techniques and Data	**Chapter 8:Techniques to consider in the determination of BAT in more than one sector**	**Chapter 6: Batch Galvanizing**
BAT Conclusions: For IED permitting	**Chapter 9.5: General BAT Conclusions** Examples: ‘Energy Efficiency’; ‘Dust emissions to air from hot dipping’	**Chapter 9.10: Batch Galvanizing** Examples: ‘HCl Emissions to air from pickling’; Separate stripping tanks

21 BATs of direct or indirect relevance to batch galvanizing

6 BATs relevant to batch galvanizing

EGGA GALVANIZING EUROPE

Example: BAT for ash and dross is in the 'General' section…because also applicable to continuous hot dip coating and wire galvanizing

BAT 16. In order to increase the material efficiency of hot dipping in the coating of wires and in batch galvanising, and to reduce the generation of waste, BAT is to use all of the techniques given below.

Technique		Description
a.	Reduction of the generation of bottom dross	The generation of bottom dross is reduced, e.g. by sufficient rinsing after pickling, removing the iron from the fluxing solution (see BAT 15 (d)), using fluxing agents with a mild pickling effect and avoiding local overheating in the galvanising kettle.
b.	Prevention, collection and reuse of zinc splashes in batch galvanising	The generation of zinc splashes from the galvanising kettle is reduced by minimising carry-over of the fluxing solution (see BAT 26 (b)). Zinc splashes out of the kettle are collected and reused. The area surrounding the kettle is kept clean to reduce contamination of the splashes.
c.	Reduction of the generation of zinc ash	The formation of zinc ash, i.e. zinc oxidation on the bath surface, is reduced for example by: - sufficient drying of the workpieces/wires before dipping; - avoiding unnecessary disturbances of the bath during production, including during skimming; - in continuous hot dipping of wires, reducing the bath surface that is in contact with air using a floating refractory cover.

EGGA GALVANIZING EUROPE

1.1.7.4. *Emissions to air from hot dipping*

BAT 26. In order to reduce emissions to air of dust and zinc from hot dipping after fluxing in hot dip coating of wires and in batch galvanising, BAT is to reduce the generation of emissions by using technique (b) or techniques (a) and (b), to collect the emissions by using technique (c) or technique (d), and to treat the waste gases by using technique (e) given below.

	Technique	Description	Applicability
Reduction of generation of emissions			
a.	Low-fume flux	Ammonium chloride in fluxing agents is partly substituted with other alkali chlorides (e.g. potassium chloride) to reduce dust formation.	Applicability may be restricted due to product specifications.
b.	Minimisation of carry-over of the fluxing solution	This includes techniques such as: — allowing enough time for the fluxing solution to drip off (see BAT 15 (c)); — drying before dipping.	Generally applicable.
Collection of emissions			
c.	Air extraction as close as possible to the source	Air from the kettle is extracted, for example using lateral hood or lip extraction.	Generally applicable.
d.	Enclosed kettle combined with air extraction	Hot dipping is carried out in an enclosed kettle and air is extracted.	Applicability to existing plants may be limited where enclosure interferes with an existing transport system for workpieces in batch galvanising.
Waste gas treatment			
e.	Fabric filter	See Section 1.7.2.	Generally applicable.

BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from hot dipping after fluxing in hot dip coating of wires and in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm³	< 2–5

The associated monitoring is given in BAT 7.

BAT STATEMENT

BEST AVAILABLE TECHNIQUES – LINKED TO THE BAT STATEMENT

BAT-AEL (QUANTATIVE LIMIT AS A RANGE)

EGGA GALVANIZING EUROPE

How to find what is relevant to Batch Galvanizing?

It is not always obvious which techniques are applicable to batch galvanizing plants – giving high potential for confusion for national permitting authorities

EGGA
GALVANIZING EUROPE

Example: Important to read the BAT title carefully…

1.1.7.3 Emissions to air from pickling

BAT 24. In order to reduce emissions to air of dust, acids (HCl, HF, H_2SO_4) and SO_x from pickling in hot rolling, cold rolling, hot dip coating and wire drawing, BAT is to use technique (a) or technique (b) in combination with technique (c) given below.

Technique		Description
Collection of emissions		
a.	Continuous pickling in closed tanks combined with fume extraction	Continuous pickling is carried out in closed tanks with limited entry and exit openings for the steel strip or wire. The fumes from the pickling tanks are extracted.
b.	Batch pickling in tanks equipped with lids or enclosing hoods combined with fume extraction	Batch pickling is carried out in tanks equipped with lids or enclosing hoods that can be opened to allow charging of the wire rod coils. The fumes from the pickling tanks are extracted.
Waste gas treatment		
c.	Wet scrubbing followed by a demister	See Section 1.7.2.

In this example, 'batch galvanizing' is not mentioned so it is not applicable to our plants ('hot dip coating' = continuous galvanizing lines)

EGGA GALVANIZING EUROPE

But…in some BATs the ‘non-relevance’ is not so obvious…so Table 11.1 is vital …

BAT 31. In order to reduce emissions to water, BAT is to treat waste water using a combination of the techniques given below.

Technique ([1])		Typical pollutants targeted
Preliminary, primary and general treatment, e.g.		
a.	Equalisation	All pollutants
b.	Neutralisation	Acids, alkalis
c.	Physical separation, e.g. screens, sieves, grit separators, grease separators, hydrocyclones, oil-water separation or primary settlement tanks	Gross solids, suspended solids, oil/grease
Physico-chemical treatment, e.g.		
d.	Adsorption	Adsorbable dissolved non-biodegradable or inhibitory pollutants, e.g. hydrocarbons, mercury
e.	Chemical precipitation	Precipitable dissolved non-biodegradable or inhibitory pollutants, e.g. metals, phosphorus, fluoride
f.	Chemical reduction	Reducible dissolved non-biodegradable or inhibitory pollutants, e.g. hexavalent chromium
g.	Nanofiltration/reverse osmosis	Soluble non-biodegradable or inhibitory pollutants, e.g. salts, metals
Biological treatment, e.g.		
h.	Aerobic treatment	Biodegradable organic compounds
Solids removal, e.g.		
i.	Coagulation and flocculation	Suspended solids and particulate-bound metals
j.	Sedimentation	
k.	Filtration (e.g. sand filtration, microfiltration, ultrafiltration)	
l.	Flotation	
([1]) The descriptions of the techniques are given in Section 1.7.3.		

11.4 Information on the reported use of BAT in the various FMP industrial sectors

The following table contains information as submitted by the FMP TWG on the current use of techniques that are presented in the BAT conclusion chapter of this document for the various FMP sectors. The information in this table represents the available knowledge of the FMP TWG on which BAT are currently used (at the time of writing) in the various FMP sectors in the Member States of the European Union. It cannot be considered an indication of the applicability of those BAT as per IED Article 3(10)(b). Applicability information can be found in the applicability clauses of the BAT conclusions chapter of this document (Chapter 9) as well as in the detailed descriptions of the techniques in Sections X.4 for the sector-specific techniques to be considered in the determination of the BAT (i.e. Sections 2.4, 3.4, 4.4, 5.4 and 6.4) or in Chapter 8 for techniques applied in more than one sector.

Table 11.1: Information on the reported use of BAT in the various FMP sectors

BREF section number	Title of technique	Hot rolling	Cold rolling	Wire drawing	Continuous hot dip coating	Batch galvanising	Relevant BAT number in Chapter 9
2.4.1.1	Enclosed scarfing (other than manual scarfing) combined with air extraction and waste gas treatment	U	N	N	N	N	42a
2.4.1.2	Enclosed grinding combined with air extraction and waste gas treatment	U	N	N	N	N	42a
2.4.1.3	Computer-aided quality control (CAQC)	U	N	N	N	N	40a
2.4.1.4	Edging or trimming of wedge-type slabs	U	N	N	N	N	40c
2.4.1.5	Slab slitting	U	N	N	N	N	40b
2.4.2.1	Process gas management system	U	U	N	U	N	20b, 21, 22
2.4.2.5	Oxy-fuel combustion	U	N	N	U	N	11h, 22h
2.4.2.6	Flameless combustion	U	N	N	U	N	11i, 22g
2.4.2.7	Pulse-fired burner	U	N	N	N	U	11j
2.4.2.8	Low-NO_X burners	U	U	U	U	U	22d
2.4.2.9	Selective catalytic reduction (SCR)	U	U	N	N	N	22i

U: Reported to be used at the time of writing; N: Reported as not used at the time of writing; NI: No information.

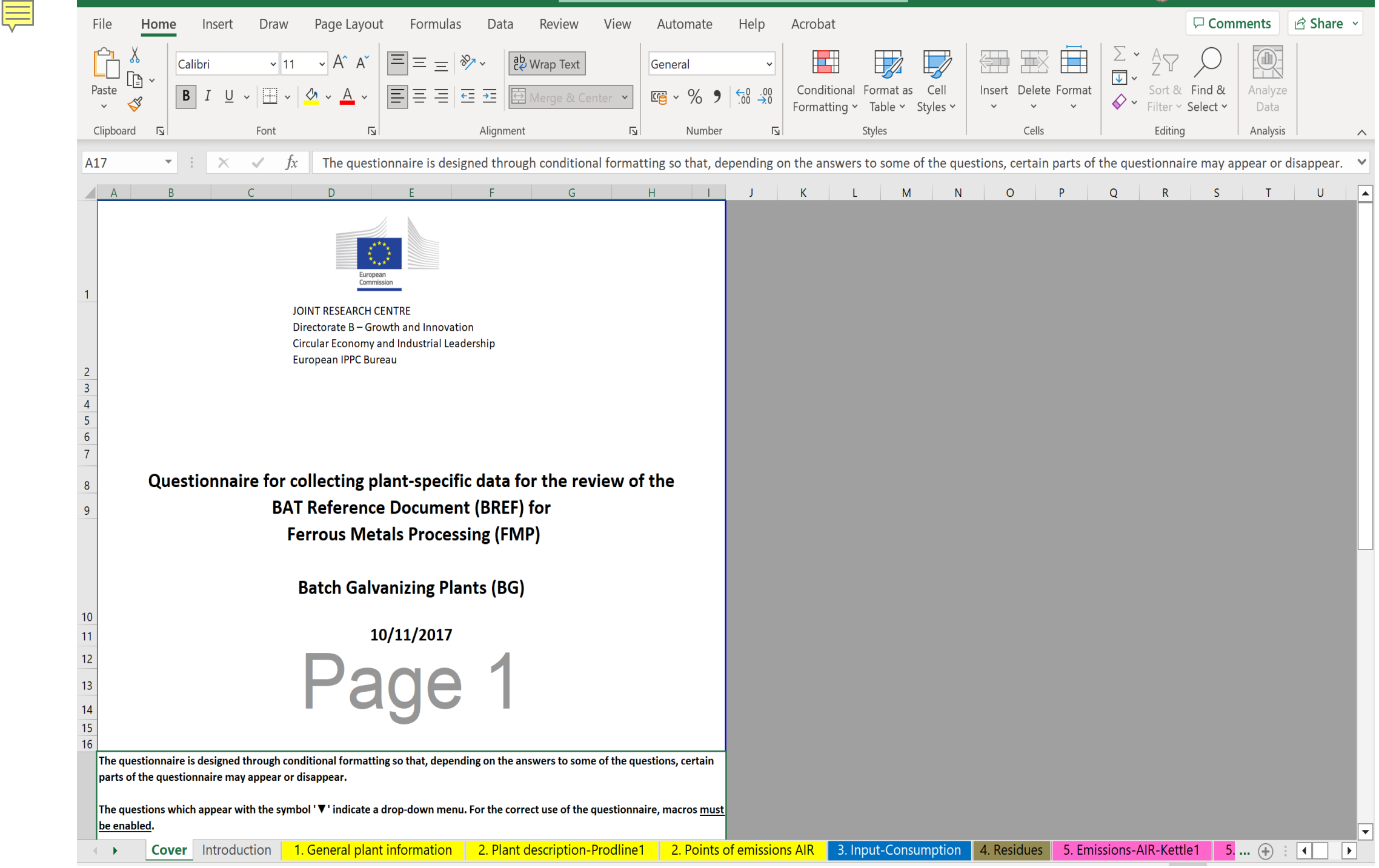
BAT 31. In order to reduce emissions to water, BAT is to treat waste water using a combination of the techniques given below.

Technique ([1])		Typical pollutants targeted
Preliminary, primary and general treatment, e.g.		
a.	Equalisation	All pollutants
b.	Neutralisation	Acids, alkalis
c.	Physical separation, e.g. screens, sieves, grit separators, grease separators, hydrocyclones, oil-water separation or primary settlement tanks	Gross solids, suspended solids, oil/grease
Physico-chemical treatment, e.g.		
d.	Adsorption	Adsorbable dissolved non-biodegradable or inhibitory pollutants, e.g. hydrocarbons, mercury
e.	Chemical precipitation	Precipitable dissolved non-biodegradable or inhibitory pollutants, e.g. metals, phosphorus, fluoride
f.	Chemical reduction	Reducible dissolved non-biodegradable or inhibitory pollutants, e.g. hexavalent chromium
g.	Nanofiltration/reverse osmosis	Soluble non-biodegradable or inhibitory pollutants, e.g. salts, metals
Biological treatment, e.g.		
h.	Aerobic treatment	Biodegradable organic compounds
Solids removal, e.g.		
i.	Coagulation and flocculation	Suspended solids and particulate-bound metals
j.	Sedimentation	
k.	Filtration (e.g. sand filtration, microfiltration, ultrafiltration)	
l.	Flotation	
([1]) The descriptions of the techniques are given in Section 1.7.3.		

BREF section number	Title of technique	Hot rolling	Cold rolling	Wire drawing	Continuous hot dip coating	Batch galvanising	Relevant BAT number in Chapter 9
8.9.3	Chemical precipitation	U	U	U	U	N	31e
8.9.4	Chemical reduction	U	U	N	U	N	31f
8.9.5	Coagulation and flocculation	U	U	U	U	N	31i
8.9.6	Equalisation	U	U	U	U	N	31a
8.9.7	Filtration	U	U	U	U	N	31k
8.9.8	Flotation	U	U	U	U	N	31l
8.9.9	Nanofiltration	U	N	N	N	N	31g
8.9.10	Neutralisation	U	U	U	U	N	31b
8.9.11	Physical separation	U	U	U	U	N	31c
8.9.12	Reverse osmosis	U	N	N	N	N	31g
8.9.13	Sedimentation	U	U	U	U	N	31j

BREF DATA COLLECTION – BASIS FOR THE BAT-AELS AND BAT-AEPLS

EGGA
GALVANIZING EUROPE



JOINT RESEARCH CENTRE
Directorate B – Growth and Innovation
Circular Economy and Industrial Leadership
European IPPC Bureau

Questionnaire for collecting plant-specific data for the review of the BAT Reference Document (BREF) for Ferrous Metals Processing (FMP)

Batch Galvanizing Plants (BG)

10/11/2017

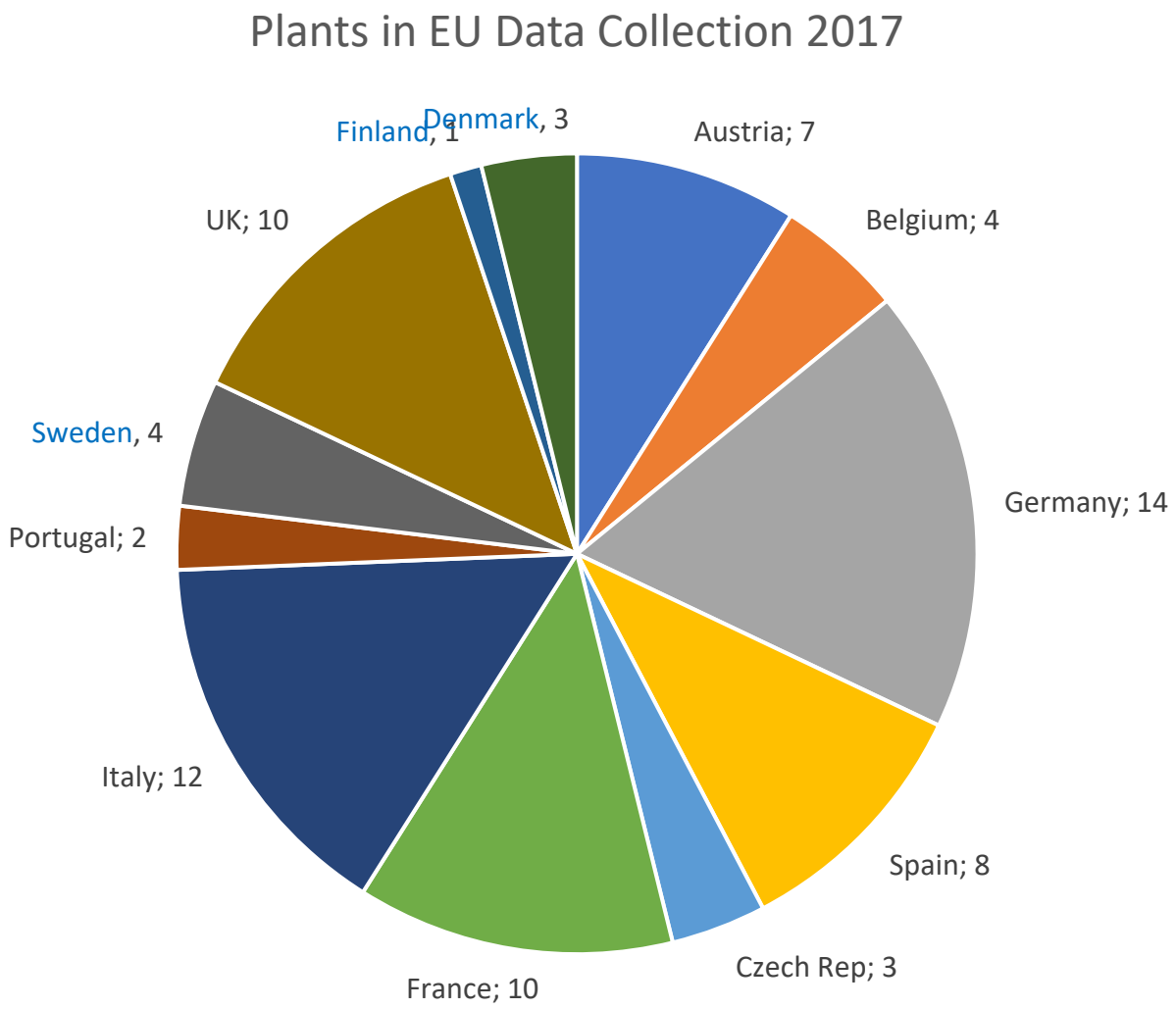
Page 1

The questionnaire is designed through conditional formatting so that, depending on the answers to some of the questions, certain parts of the questionnaire may appear or disappear.

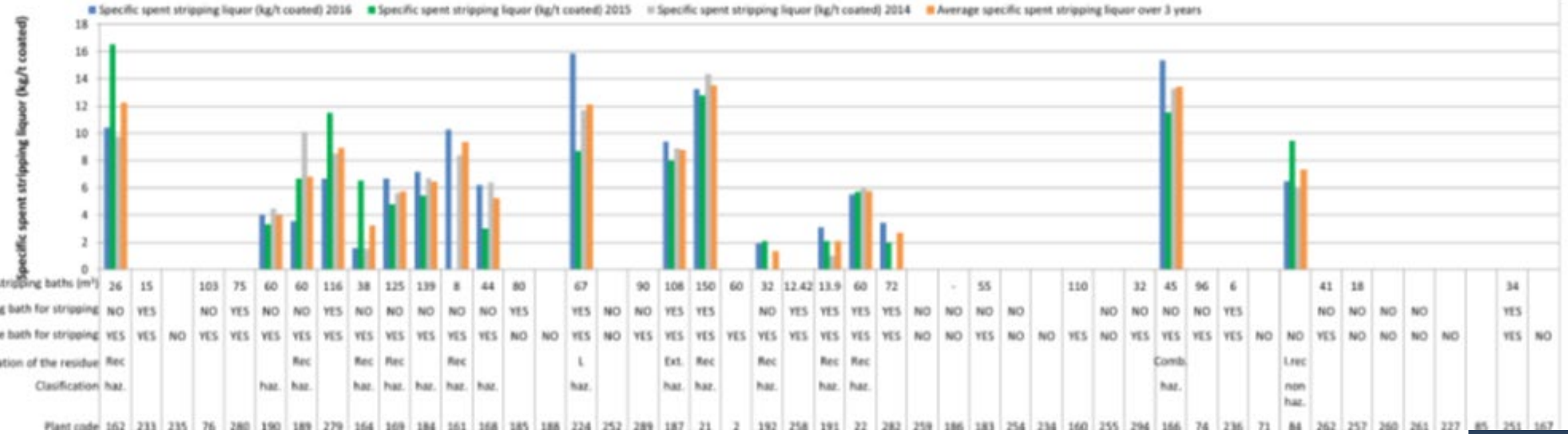
The questions which appear with the symbol '▼' indicate a drop-down menu. For the correct use of the questionnaire, macros must be enabled.

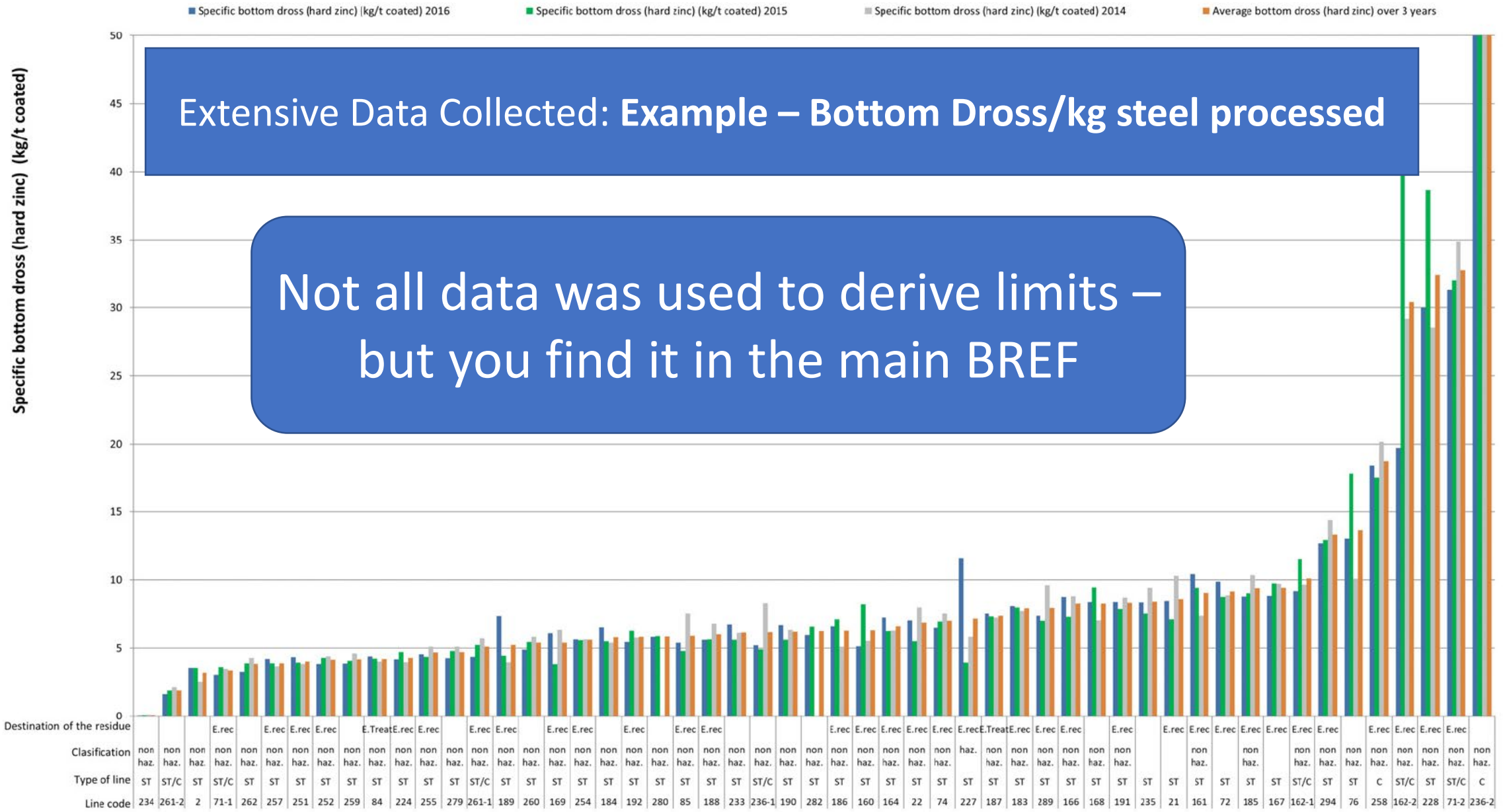
Deriving BAT-AELs and BAT-AEPLs : based on Data Questionnaire

Detailed data collected from 84 batch galvanizing plants in 13 Countries



Extensive Data Collected: Example – **Spent Pickling Acid/kg steel processed**

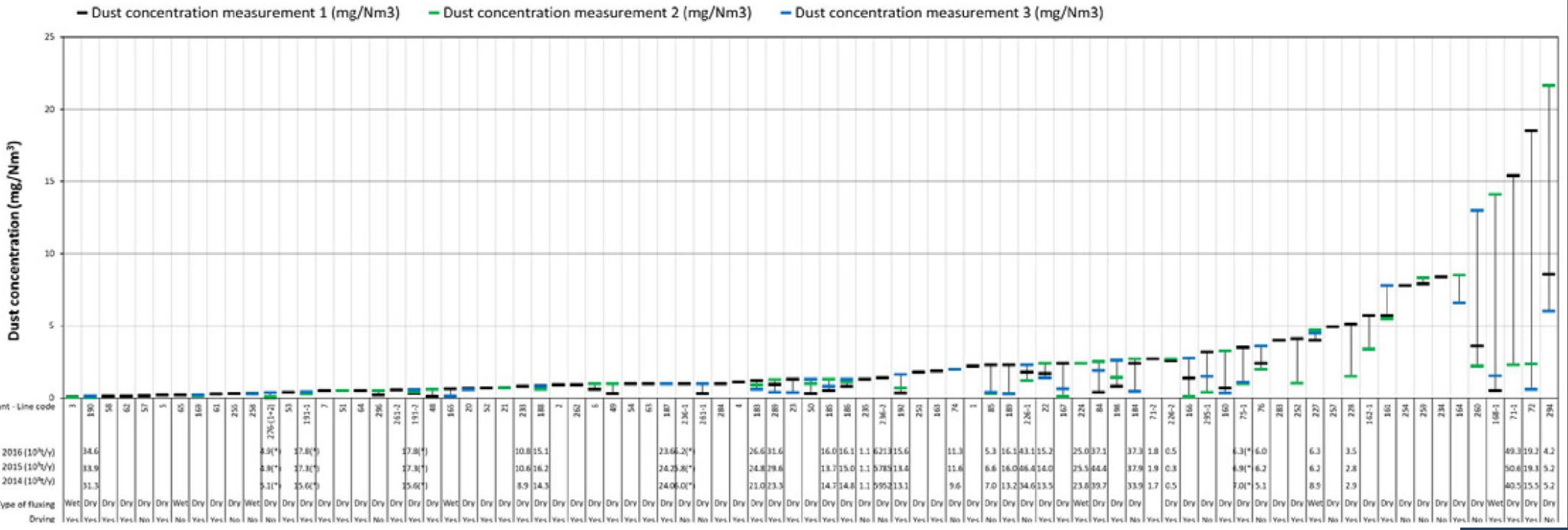




Note: Line 236-2 is a specialist centrifuge line for galvanising of nails.

For ‘Key Environmental Issues’: Data was used to derive limits

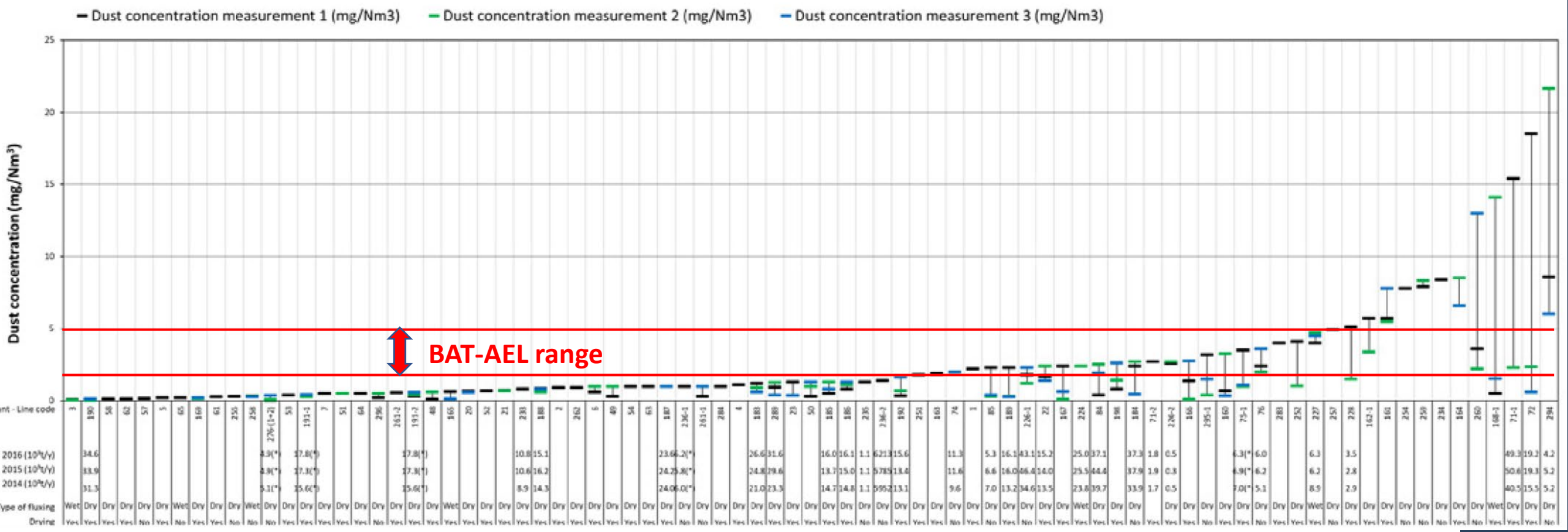
Example – Dust Emissions to Air




Sweden
Denmark

For ‘Key Environmental Issues’: Data was used to derive limits

Example – Dust Emissions to Air



BAT-AELs AND BAT-APELs FOR BATCH GALVANIZING

EGGA
GALVANIZING EUROPE

BAT-AEL

Table 1.17

BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from hot dipping after fluxing in hot dip coating of wires and in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm^3	< 2–5

BAT-AEL

BAT-associated emission level (BAT-AEL) for channelled HCl emissions to air from pickling and stripping with hydrochloric acid in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
HCl	mg/Nm^3	< 2–6

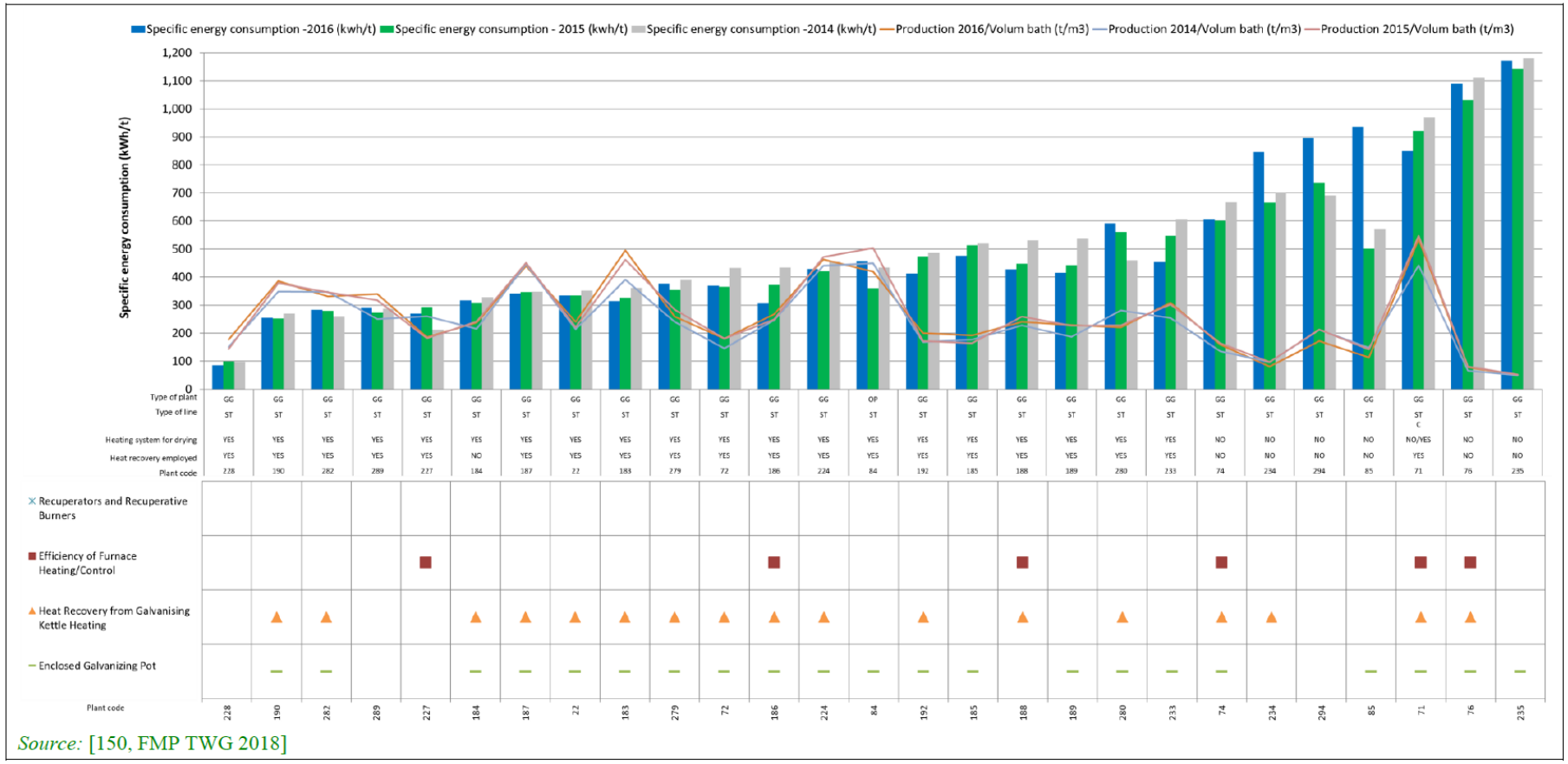
BAT-AEL

Table 1.13

BAT-associated emission level (BAT-AEL) for channelled NOX emissions to air and indicative emission level for channelled CO emissions to air from heating the galvanising kettle in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)	Indicative emission level (Daily average or average over the sampling period)
NO_X	mg/Nm^3	70–300	No indicative level
CO	mg/Nm^3	No BAT-AEL	10–100

Example – recognition that specific energy (kWh/t) varies with production levels (t/m³ kettle volume)



Source: [150, FMP TWG 2018]

Figure 6.5: Specific energy consumption (kWh/t of feedstock processed) in batch galvanising including the yearly production throughput (production/volume hot dipping bath).

BAT-AEPL

Table 1.4

BAT-associated environmental performance level (BAT-AEPL) for specific energy consumption in batch galvanising

Specific process(es)	Unit	BAT-AEPL (Yearly average)
Batch galvanising	kWh/t	300–800 (1) (2) (3)

(1) The higher end of the BAT-AEPL range may be higher when centrifugation is used to remove the excess zinc and/or when the galvanising bath temperature is higher than 500 °C.

(2) The higher end of the BAT-AEPL may be higher and up to 1 200 kWh/t for batch galvanising plants operating at an average yearly production throughput below 150 t/m³ of kettle volume.

(3) In the case of batch galvanising plants producing mainly thin products (e.g. < 1,5 mm), the higher end of the BAT-AEPL range may be higher and up to 1 000 kWh/t.

Not perfect – but gives some flexibility

Footnotes – are very important!!

EGGA GALVANIZING EUROPE

BAT-AEPL

Table 1.5

BAT-associated environmental performance level (BAT-AEPL) for specific pickling acid consumption in batch galvanising

Pickling acid	Unit	BAT-AEPL (3-year average)
Hydrochloric acid, 28 wt-%	kg/t	13–30 (1)

(1) The higher end of the BAT-AEPL range may be higher and up to 50 kg/t when galvanising mainly workpieces with a high specific surface area (e.g. thin products < 1,5 mm, tubes with a wall thickness < 3 mm) or when regalvanising is carried out.

Footnotes – are very important!!

EGGA GALVANIZING EUROPE

IN DETAIL - PICKLING

Enclosed Pretreatment

Open Pickling Baths

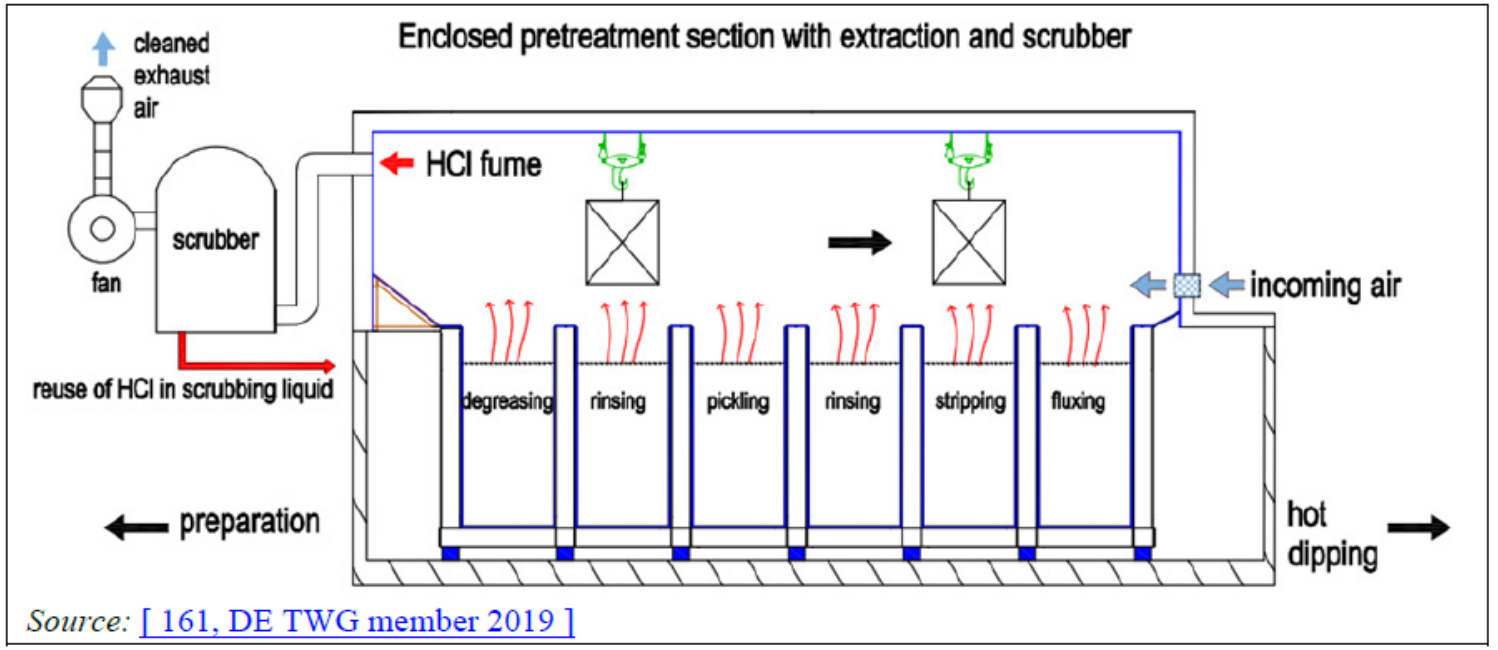


Figure 6.31: Schematic for an enclosed pretreatment section in batch galvanising

1.6.3. Emissions to air

BAT 62. In order to reduce emissions of HCl to air from pickling and stripping in batch galvanising, BAT is to control the operating parameters (i.e. temperature and acid concentration in the bath) and to use the techniques given below with the following order of priority:

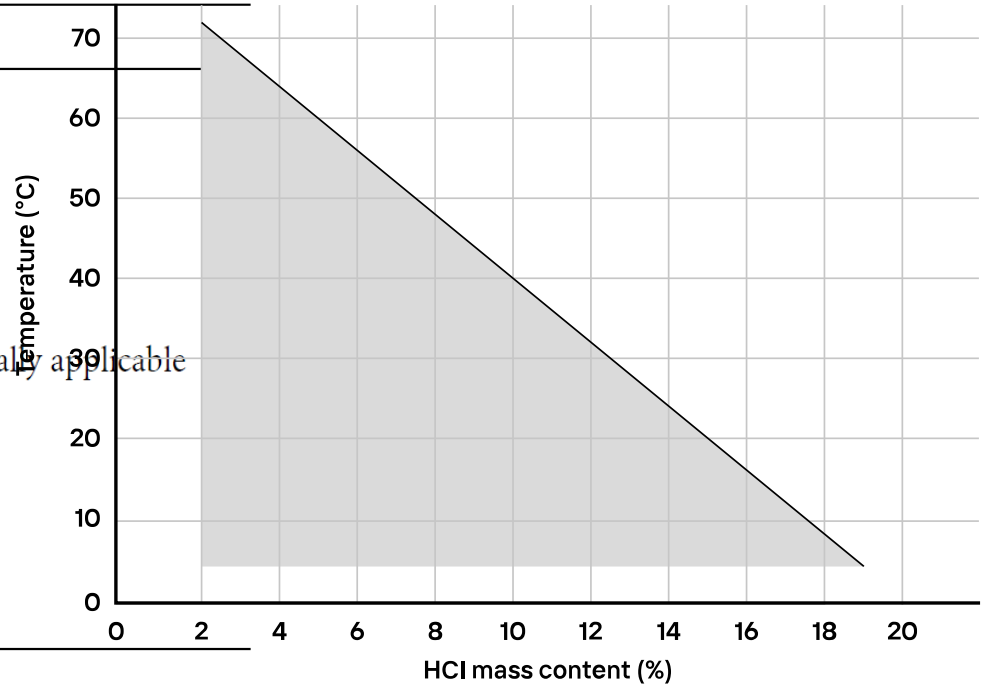
- technique (a) in combination with technique (c); Enclosed pretreatment + wet scrubber
- technique (b) in combination with technique (c); Hood / lip extraction + wet scrubber
- technique (d) in combination with technique (b); Control temp + concentration + hood / lip extraction
- technique (d). Control temp + concentration (open pickling baths)

Technique (d) is BAT only for existing plants and provided that it ensures at least an equivalent level of environmental protection compared to using technique (c) in combination with techniques (a) or (b).

BAT-associated emission level (BAT-AEL) for channelled HCl emissions to air from pickling and stripping with hydrochloric acid in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
HCl	mg/Nm³	< 2–6

	Technique	Description	Applicability
Collection of emissions			
a.	Enclosed pretreatment section with extraction	The entire pretreatment section (e.g. degreasing, pickling, fluxing) is encapsulated and the fumes are extracted from the enclosure.	Only applicable to new plants and major plant upgrades
b.	Extraction by lateral hood or lip extraction	Acid fumes from the pickling tanks are extracted using lateral hoods or lip extraction at the edge of the pickling tanks. This may also include emissions from degreasing tanks.	Applicability in existing plants may be restricted by a lack of space.
Waste gas treatment			
c.	Wet scrubbing followed by a demister	See Section 1.7.2.	Generally applicable
Reduction of generation of emissions			
d.	Restricted operating range for hydrochloric acid open pickling baths	Hydrochloric acid baths are strictly operated within the temperature and HCl concentration range determined by the following conditions: (a) 4 °C < T < (80 – 4 w) °C; (b) 2 wt-% < w < (20 – T/4) wt-%, where T is the pickling acid temperature expressed in °C and w the HCl concentration expressed in wt-%. The bath temperature is measured at least once every day. The HCl concentration in the bath is measured every time fresh acid is replenished and in any case at least once every week. To limit evaporation, movement of air across the bath surfaces (e.g. due to ventilation) is minimised.	Generally applicable



BAT 7 – Monitoring Emissions to Air
Important Footnotes

(1) To the extent possible, the measurements are carried out at the highest expected emission state under normal operating conditions.
(2) The monitoring does not apply when only electricity is used.
(3) If measurements are continuous, the following generic EN standards apply: EN 15267-1, EN 15267-2, EN 15267-3 and EN 14181.
(4) If measurements are continuous, EN 13284-2 also applies.
(5) If the emission levels are proven to be sufficiently stable, a lower monitoring frequency can be adopted but in any case at least once every 3 years.
(6) In the event that techniques (a) or (b) of BAT 62 are not applicable, measurement of the HCl concentration in the gaseous phase above the pickling bath is carried out at least once every year.
(7) The monitoring only applies when the substance concerned is identified as relevant in the waste gas stream based on the inventory given in BAT 2.
(8) The monitoring does not apply if only natural gas is used as a fuel or when only electricity is used.

nordic GALVANIZERS

NORDIC GALVANIZERS' ANNUAL AND MEMBER MEETING 24-25 MAY 2023

Password: ng2425

EGGA GALVANIZING EUROPE

IN DETAIL – DUST EMISSIONS FROM GALVANIZING BATH

1.1.7.4 Emissions to air from hot dipping

BAT 26. In order to reduce emissions to air of dust and zinc from hot dipping after fluxing in hot dip coating of wires and in batch galvanising, BAT is to reduce the generation of emissions by using technique (b) or techniques (a) and (b), to collect the emissions by using technique (c) or technique (d), and to treat the waste gases by using technique (e) given below.

Technique		Description	Applicability
Reduction of generation of emissions			
a.	Low-fume flux	Ammonium chloride in fluxing agents is partly substituted with other alkali chlorides (e.g. potassium chloride) to reduce dust formation.	Applicability may be restricted due to product specifications.
b.	Minimisation of carry-over of the fluxing solution	This includes techniques such as: – allowing enough time for the fluxing solution to drip off (see BAT 15 (c)); – drying before dipping.	Generally applicable.
Collection of emissions			
c.	Air extraction as close as possible to the source	Air from the kettle is extracted, for example using lateral hood or lip extraction.	Generally applicable.
d.	Enclosed kettle combined with air extraction	Hot dipping is carried out in an enclosed kettle and air is extracted.	Applicability to existing plants may be limited where enclosure interferes with an existing transport system for workpieces in batch galvanising.
Waste gas treatment			
e.	Fabric filter	See Section 1.7.2.	Generally applicable.

Table 1.17: BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from hot dipping after fluxing in hot dip coating of wires and in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm^3	< 2-5

The associated monitoring is given in BAT 7.

Required
- Bag / Fabric Filter
- Minimise flux carry over – drying and drainage

Extraction – can be lip extraction or full enclosure

Low fume flux to be considered but not required

Wet scrubber is not BAT

EGGA GALVANIZING EUROPE

“APPLICABILITY” CONCEPTS

Some special situations for Batch Galvanizing plants have been recognised (eg BAT-AEPL footnotes) …but it is **important to read the ‘Applicability’ statements**…to obtain correct interpretation

EGGA
GALVANIZING EUROPE

Example: Recognition that markets for recycling of filter dusts are not always available

BAT 35. In order to reduce the quantity of waste sent for disposal from hot dipping, BAT is to avoid the disposal of zinc-containing residues by using all of the techniques given below.

Technique		Description	Applicability
a.	Recycling of fabric filter dust	Dust from fabric filters containing ammonium chloride and zinc chloride is collected and reused, e.g. to produce fluxing agents. This may take place on site or off site.	Only applicable in hot dipping after fluxing. Applicability may be restricted depending on the availability of a market.
b.	Recycling of zinc ash and top dross	Metallic zinc is recovered from zinc ash and top dross by melting in recovery furnaces. The remaining zinc-containing residue is used, e.g. for zinc oxide production. This may take place on site or off site.	Generally applicable.
c.	Recycling of bottom dross	Bottom dross is used, e.g. in the non-ferrous metals industries to produce zinc. This may take place on site or off site.	Generally applicable.

Important

Similar ‘applicability’ recognition for waste acid

BAT 18. In order to reduce the quantity of spent pickling acid sent for disposal, BAT is to recover spent pickling acids (i.e. hydrochloric acid, sulphuric acid and mixed acid). The neutralisation of spent pickling acids or the use of spent pickling acids for emulsion splitting is not BAT.

Description

Techniques to recover spent pickling acid on site or off site include:

i. spray roasting or using fluidised bed reactors for the recovery of hydrochloric acid;
ii. crystallisation of ferric sulphate for the recovery of sulphuric acid;
iii. spray roasting, evaporation, ion exchange or diffusion dialysis, for the recovery of mixed acid;
iv. use of spent pickling acid as a secondary raw material (e.g. for the production of iron chloride or pigments).

Applicability

In batch galvanising, if the use of spent pickling acid as a secondary raw material is restricted by market unavailability, neutralisation of spent pickling acid may exceptionally take place.

Important

EGGA GALVANIZING EUROPE

MONITORING REQUIREMENTS

Monitoring Frequency Increased? *Yes and No*.

Emissions to Air: Monitoring

BAT 7. **BAT is to monitor channelled emissions to air with at least the frequency given below and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.**

Substance/ Parameter	Specific process(es)	Sector	Standard(s)	Minimum monitoring frequency (1)	Monitoring associated with
CO	Feedstock heating (2)	HR, CR, WD, HDC	EN 15058 (3)	Once every year	BAT 22
	Heating of the galvanising kettle (2)	HDC of wires, BG		Once every year	
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors Mixed acid recovery by spray roasting	HR, CR, HDC, WD		Once every year	BAT 29

Footnote 5 – not applicable ☹

BAT 7 – Monitoring Emissions to Air
Important Footnotes

(1) To the extent possible, the measurements are carried out at the highest expected emission state under normal operating conditions.
(2) The monitoring does not apply when only electricity is used.
(3) If measurements are continuous, the following generic EN standards apply: EN 15267-1, EN 15267-2, EN 15267-3 and EN 14181.
(4) If measurements are continuous, EN 13284-2 also applies.
(5) If the emission levels are proven to be sufficiently stable, a lower monitoring frequency can be adopted but in any case at least once every 3 years.
(6) In the event that techniques (a) or (b) of BAT 62 are not applicable, measurement of the HCl concentration in the gaseous phase above the pickling bath is carried out at least once every year.
(7) The monitoring only applies when the substance concerned is identified as relevant in the waste gas stream based on the inventory given in BAT 2.
(8) The monitoring does not apply if only natural gas is used as a fuel or when only electricity is used.

HCl	Pickling with hydrochloric acid	HR, CR, HDC, WD	EN 1911 (3)	Once every year	BAT 24
	Pickling and stripping with hydrochloric acid	BG		Once every year	BAT 62
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors	HR, CR, HDC, WD		Once every year	BAT 29
	Pickling and stripping with hydrochloric acid in open pickling baths	BG	No EN standard available	Once every year (6)	BAT 62

Footnote 5 – not applicable ☹

SO_X	Pickling with sulphuric acid	HR, CR, HDC, WD		Once every year	BAT 24
		BG			

Dust	Feedstock heating	HR, CR, WD, HDC	EN 13284-1 (3) (4)	Continuous for any stack with dust mass flows > 2 kg/h Once every 6 months for any stack with dust mass flows between 0,1 kg/h and 2 kg/h Once every year for any stack with dust mass flows < 0,1 kg/h	BAT 20
	Hot dipping after fluxing	HDC, BG		Once every year (5)	BAT 26

Footnote 5 – reduce to every 3 years if stable

Zn	Hot dipping after fluxing	HDC, BG		Once every year (5)	BAT 26	

Footnote 5 – reduce to every 3 years if stable

IMPORTANT

No BAT-AEL was set for Zn emissions to air – monitoring requirement was added because EC wants data for next BREF revision!

No monitoring or BAT-AEL for ammonia (NH_3) or lead (Pb)

NO_X	Feedstock heating (2)	HR, CR, WD, HDC	EN 14792 (3)	Continuous for any stack with NO_X mass flows > 15 kg/h Once every 6 months for any stack with NO_X mass flows between 1 kg/h and 15 kg/h Once every year for any stack with NO_X mass flows < 1 kg/h	BAT 22	
-	Heating of the galvanising kettle (2)	HDC of wires, BG		Once every year		
	Pickling with nitric acid alone or in combination with other acids	HR, CR		Once every year	BAT 25	
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors Mixed acid recovery by spray roasting or by evaporation	HR, CR, WD, HDC		Once every year	BAT 29	

Footnote 5 – not applicable ☹

There are extensive BAT requirements related to management systems

- Environmental Management System
- Inventory of process chemicals used and of waste water and waste gas streams
- Chemicals Management System
- Plan for prevention and control of leaks and spillages
- Risk-based OTNOC management plan

For all the above, requirements are same for large steel producers and small galvanizers, but the BREF states:

"The level and detail of the plan/system will generally be related to the nature, scale and complexity of the plant"

OTNOC = Other Than Normal Operating Conditions

EGGA GALVANIZING EUROPE

ISSN 1831-9424

European Commission

JRC SCIENCE FOR POLICY REPORT

Best Available Techniques (BAT) Reference Document for the Ferrous Metals Processing Industry

Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

Aries, E., Gómez, Benavides, J., Mavromatis, S., Klein, G., Chronopoulos, G., Roudier, S.

2022

https://eippcb.jrc.ec.europa.eu/reference/ferrous-metals-processing-industry

EGGA GALVANIZING EUROPE

Additional Points / Q&A

EGGA
GALVANIZING EUROPE

Additional Issues

- Impact of the IED Revision
  - BAT-AEPLs to be mandatory for permits
  - Evaluation of feasibility to meet lowest level of BAT-AEL range
- Chemical Management Systems – effect of the STM BREF
- Electrical heating in BATs for furnace emissions
- Error in BAT 59
- Emissions to Water

BAT 22. In order to prevent or reduce NO_X emissions to air from heating while limiting CO emissions and the emissions of NH_3 from the use of SNCR and/or SCR, BAT is to use either electricity generated from fossil-free energy sources or an appropriate combination of the techniques given below.

Technique		Description	Applicability
Reduction of generation of emissions			
a.	Use of a fuel or a combination of fuels with low NO_X formation potential	Fuels with a low NO_X formation potential, e.g. natural gas, liquefied petroleum gas, blast furnace gas and basic oxygen furnace gas.	Generally applicable.

1.6.1. Residues

BAT 58. In order to prevent the generation of spent acids with high zinc and high iron concentrations or, where that is not practicable, to reduce their quantity sent for disposal, BAT is to carry out pickling separately from stripping.

Description

Pickling and stripping are carried out in separate tanks in order to prevent the generation of spent acids with high zinc and high iron concentrations or to reduce their quantity sent for disposal.

Applicability

Applicability to existing plants may be restricted by a lack of space in the event that additional tanks for stripping are needed.

BAT 59. In order to reduce the quantity of spent stripping solutions with high zinc concentrations sent for disposal, BAT is to recover the spent stripping solutions and/or the $ZnCl_2$ and NH_4Cl contained therein.

Description

Techniques to recover spent stripping solutions with high zinc concentrations on site or off site include the following:

— Zinc removal by ion exchange. The treated acid can be used in pickling, while the $ZnCl_2$- and NH_4Cl-containing solution resulting from the stripping of the ion-exchange resin can be used for fluxing.

— Zinc removal by solvent extraction. The treated acid can be used in pickling, while the zinc-containing concentrate resulting from stripping and evaporation can be used for other purposes.

EC's error!
BAT 59 to be ignored.

EGGA GALVANIZING EUROPE

1.6.4. **Waste water discharge**

BAT 63. It is not BAT to discharge waste water from batch galvanising.

Description

Only liquid residues (e.g. spent pickling acid, spent degreasing solutions and spent fluxing solutions) are generated. These residues are collected. They are appropriately treated for recycling or recovery and/or sent for disposal (see BAT 18 and BAT 59).

BAT-AELs for emissions to water are NOT for batch galvanizing – no data collected for that to set the limits

Chemical Management Systems

EGGA
GALVANIZING EUROPE

COMMISSION IMPLEMENTING DECISION (EU) 2022/2110

of 11 October 2022

establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the ferrous metals processing industry

(notified under document C(2022) 7054)

(Text with EEA relevance)

BAT 3. In order to improve the overall environmental performance, BAT is to elaborate and implement a chemicals management system (CMS) as part of the EMS (see BAT 1) that incorporates all of the following features:

i. A policy to reduce the consumption and risks of process chemicals, including a procurement policy to select less harmful process chemicals and their suppliers with the aim of minimising the use and risks of hazardous substances and avoiding the procurement of an excess amount of process chemicals. The selection of process chemicals may consider:

Applicability

The level of detail of the CMS will generally be related to the nature, scale and complexity of the plant.

safer alternatives to the use of hazardous substances (e.g. use of other process chemicals with no or lower environmental impacts, see BAT 9).

(d) the anticipatory monitoring of regulatory changes related to hazardous chemicals and safeguarding compliance with applicable legal requirements.

The inventory of process chemicals (see BAT 2) may be used to support the selection of process chemicals.

ii. Goals and action plans to avoid or reduce the use and risks of hazardous substances.

iii. Development and implementation of procedures for the procurement, handling, storage, and use of process chemicals to prevent or reduce emissions to the environment (e.g. see BAT 4).

Small plants
15-50 employees

SCALE

Large plants or international groups of plants
> 50 to ~1000 employees

COMPLEXITY

Galvanizing activity only

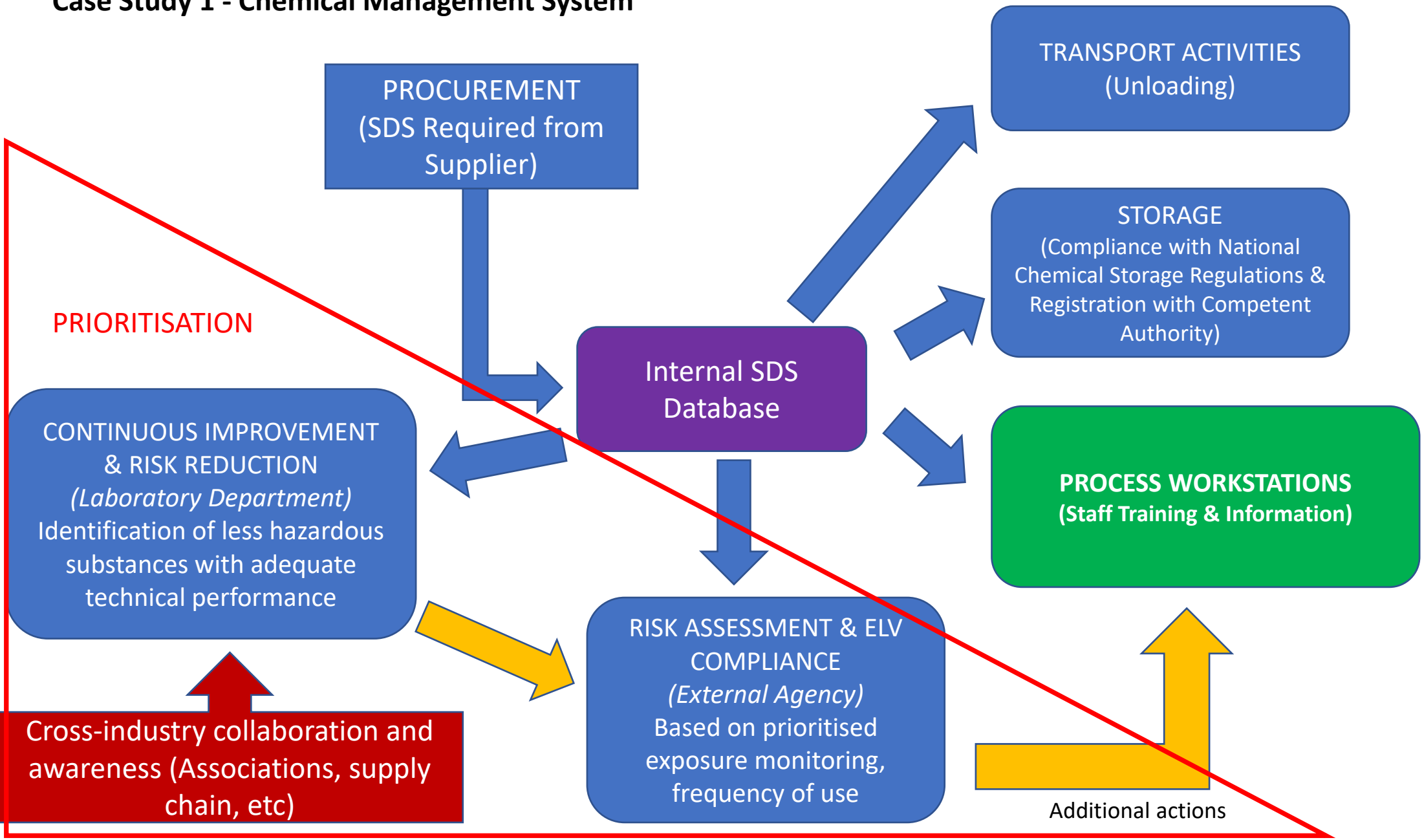
Additional activities on site or within company

EGGA
GALVANIZING EUROPE

CASE STUDY 1

Large galvanizing plant in Spain (Approx 150 employees)

Case Study 1 - Chemical Management System



Internal SDS Database

Transport

NOMBRE DEL PRODUCTO	USO	PUESTO DE TRABAJO	CLASIFICACIÓN PRODUCTO CONCENTRADO	OBSERVACIONES	ADR	UN	CLASE
Acetona	Disolvente de pintura. Limpieza	Mantenimiento	Fácilmente inflamable e Irritante		SI	1090	3 (II)
Ácido bórico 4%	Reactivo para la valoración de cloruro amónico	Técnico Laboratorio	No peligroso		NO	--	--
Ácido clorhídrico 1N	Reactivo para la valorización de alcalinidad libre y total (Novaclean L-60)	Técnico Laboratorio	Corrosivo		SI	1798	8 (II)
Ácido clorhídrico 33%	Materia prima balsas de decapado. En los baños está diluido a una concentración entre el 1 - 12%	Baños	Corrosivo / Irritante	Realizadas mediciones higiénicas anuales.	Sí	1789	8 (II)
Ácido clorhídrico 33%	Materia prima balsas de decapado. En los baños está diluido a una concentración entre el 1 - 12%	Centrífuga	Corrosivo / Irritante	Realizadas mediciones higiénicas anuales.	Sí	1789	8 (II)
Ácido clorhídrico 33%	Materia prima balsas de decapado. En los baños está diluido a una concentración entre el 1 - 12%	Técnico Laboratorio	Corrosivo/Irritante	Realizadas mediciones higiénicas anuales.	Sí	1789	8 (II)
Ácido clorhídrico 33%	Materia prima balsas de decapado. En los baños está diluido a una concentración entre el 1 - 12%	Mantenimiento	Corrosivo / Irritante		SÍ	1789	8 (II)
Ácido etilendiaminotetracético EDTA 0,1 M	Reactivo para la valoración de cloruro de Zinc.	Técnico Laboratorio	No peligroso		NO	--	--
Ácido nítrico 65%	Valoración de cloruro de Zinc.	Técnico Laboratorio	Corrosivo. Comburente		SI	2031	8 (II E)
Ácido orto-fosfórico 85%	Reactivo para la valorización Cloruro de hierro y valorización de Brugal 4415	Técnico Laboratorio	Corrosivo		SI	1805	8 (III E)
Ácido sulfúrico 0,5 N	Reactivo para la valoración de cloruro amónico	Técnico Laboratorio	Corrosivo		SI	2796	8 (III E)
Ácido sulfúrico 95-97%	Reactivo para la valorización Cloruro de hierro y valorización de Brugal 4415	Técnico Laboratorio	Corrosivo		SI	1830	8 (II E)
ADD Cleaner 501 DIP	Desengrase alcalino	NO USO	Irritante		NO	--	--
Additive DEC	Inhibidor baños de decapado. En los baños de decapado está a una concentración del 0,05% aprox.	NO USO	Corrosico. Irritante		NO	--	--
Additive SP	Tensioactivo desengrase ácido	Carga y Descarga	Corrosivo. Irritante		NO	--	--
Additive SP	Tensioactivo desengrase ácido	Mantenimiento	Corrosivo. Irritante		NO	--	--
Additive SP	Tensioactivo desengrase ácido	Baños	Corrosivo. Irritante		NO	--	--
Adhesivo Uneplas FT	Pegamento para instalaciones de PVC	Mantenimiento	Fácilmente inflamable, nocivo, Irritable		SI	1133	3 (III)
Agua oxigenada 30%	Depuración baño de flux	Carga y Descarga	Corrosivo / Irritante		SI	2014	5,1 (II)
Agua oxigenada 30%	Depuración baño de flux	Mantenimiento	Corrosivo / Irritante		SI	2014	5,1 (II)
Alambre de zinc	Metalización a pistola.	Mantenimiento	No peligroso		NO	--	--
Alambre de zinc	Metalización a pistola.	Repaso	No peligroso		NO	--	--

EGGA GALVANIZING EUROPE

Worker Exposure Assessments (example)

Empresa: [redacted]

EVALUACION DE CONTAMINANTES DEL PUESTO DE TRABAJO

7.3.1 ***PUESTO : BAÑOS***

Fecha evaluación: **04/05/2022** *Evaluador:* **ALS**

1 RESULTADOS

MUESTRA	FECHA	TRABAJADOR	CONTAMINANTE	TIEMPO DE EXPOSICION (horas)	CONCENTRACIÓN MEDIDA (mg/m³)	ED (mg/m³)	VALOR LÍMITE (mg/m³)	INDICE EXPOSICIÓN	EFECTO ADITIVO
M-22-3963	11/3/22	[redacted]	Materia particulada inhalable	7.75	< 0,37	0,3584	10	0,0358	NO
M-22-3963	11/3/22		Metal Fe (fracción inhalable)	7.75	0,0157	0,0152	5	0,00304	NO
M-22-3963	11/3/22		Metal Pb (fracción inhalable)	7.75	< 0,0055	0,0053	0,15	0,0355	NO
M-22-3963	11/3/22		Metal Mn (fracción inhalable)	7,75	< 0,0055	0,0053	0,2	0,0265	NO
M-22-3963	11/3/22		Metal Al (fracción inhalable)	7,75	< 0,0275	0,0266	10	0,0026	NO
M-22-3967	11/3/22		Matria particulada respi-rable	7.75	0,18	0,1743	3	0,0581	NO
M-22-3967	11/3/22		Metal Zn (fracción respirable)	7.75	0,0065	0,0062	2	0,0031	NO
M-22-1157	17/1/22		Cloruro de hidrógeno	7.75	< 0,06	0,0581	7,6	0,0076	NO

EGGA GALVANIZING EUROPE

Case Study 1: Observations

- Primary focus is on worker exposures
- Simple SDS Database integrated to internal management system
- Management actions based on:
  - SDS content
  - ELVs and OSH requirements
- Continuous improvement – an ongoing process to reduce risk
- Risk assessment (beyond SDS…)
  - External agency (mandatory “Prevention Service” accredited by national Ministry)
  - Limited internal capacity
- Process chemicals are used in the process but are not incorporated into the ‘product’ – less focus on communication to customers
- **Prioritisation is implicit in the management process**

CASE STUDY 2

Prestia – A Group of Galvanizing Plants in France (5 installations; approx. 450 employees (all activities). Some sites operate other activities that may be outside the IED but involve handling of chemicals)

Seirich

The Seirich computer application

A tool to assess and prevent chemical risks in the workplace

Glues, degreasers, resins and paints, whether in liquid, powder or gas form, are examples of chemical products which are present in all industries. When chemicals come into contact with skin or are inhaled or ingested, they can cause acute or chronic poisoning. They also can cause fires and explosions, or cause damage to the environment. An assessment of risks is needed to take necessary preventive actions.

In cooperation with different partners, INRS developed Seirich, a software which assesses chemical risks in the workplace.

A tool for users of all levels

Seirich can be used to create an inventory of the chemical products used in a company and the chemical agents emitted during processes. It can rank products and agents according to priority with regards to chemical risk, and can help to develop a prevention action plan. It is designed to adapt to the needs of companies of any size. The tool can be used by anyone: company directors, managers, occupational physicians, occupational health services, chemists, toxicologists and chemical risk specialists, regardless of their level of knowledge of chemical risk. Three expertise levels adapt the programme to the user:

- Level 1 is intended for users with little or no knowledge of chemical risk prevention wishing to conduct an assessment.
- Level 2 is intended for intermediate users wishing to implement risk assessments and prevention at the company.
- Level 3 is intended for experts in chemical risk who can use sophisticated modelling tools, analyse measurement results and objectively interpret the algorithms used by Seirich.

A+ A A-

MORE


Studies and Research


Divisions and Laboratories


Studies and Publications

DIARY OF EVENTS

Hand arm vibration international

SEIRICH
Évaluer le risque chimique

Une nouvelle version est disponible.

Veuillez suivre le lien suivant : Version 3.3.0

Produits étiquetés | Agents chimiques émis | Substances

Tous les établissements | Sélectionner une unité de travail | Sélectionner un poste de travail

Un produit étiqueté est un produit soumis à la réglementation CLP et qui présente un ensemble d'informations réglementaires sur la FDS et son étiquette : pictogramme et mentions de danger en particulier.

Rechercher un produit / un fournisseur

Tous les statuts

Nom des produits étiquetés	Nom d'usage	Fournisseur	FDS	Date MàJ FDS	Statut
Acide chlorhydrique Kuhlmann	Acide chlorhydrique Kuhlmann	Produits chimiques de loos		23/02/2016	
Acide chlorhydrique Quadrimex	Acide chlorhydrique Quadrimex	Quadrimex		25/08/2021	
Alcali 20%	Alcali 20%	Brenntag		31/03/2022	
Alu 900	Alu 900	Bardahl		04/02/2021	
Bactodor	Bactodor	SID		14/10/2020	
Bonderite	Bonderite	Henkel		21/02/2019	
Brugal galvapas 320	Brugal galvapas 320	Vera Chimie Developpements		20/01/2020	
Cap horn	Cap horn	Bardahl		12/05/2022	
Chlorure d'ammonium liquide	Chlorure d'ammonium liquide	Vera Chimie Developpements		10/09/2019	
Chlorure d'ammonium solide	Chlorure d'ammonium solide	Vera Chimie Developpements		07/10/2019	
Concentré de shampoing carrosserie	Concentré de shampoing carrosserie	FORCH		03/06/2022	
Dégraissant atelier	Dégraissant atelier	Bardahl		23/11/2021	

Gérer les champs personnalisés des produits

Ajouter à la liste les produits non associés à une zone

Note: Many substances are beyond the IED FMP installation activity

Ajouter un produit étiqueté

GCX.ser - SEIRICH

SEIRICH
Évaluer le risque chimique

Version du référentiel à jour. Pour en savoir plus sur les modifications apportées par ce référentiel, consulter www.seirich.fr

Synthèse de l'inventaire | Hiérarchisation | Risque résiduel | Plan d'action

Tous les établissements | Sélectionner une unité de travail | Sélectionner un poste de travail

Santé

Incendie

Environnement

Produits Etiquetés

Rechercher un produit

Santé	Incendie	Environnement
WS ZINK 80/81 (peinture riche en zinc)	Graisse silicone 500 (essai)	Matorene aérosol
GNR BP PRO	Lub'sech FPS	Super chaine
Brugal galvapas 320	Lubrifiant FPS (essai)	Graisse silicone 500 (essai)
Zincarev blok 107	Lumiderm NF	Lub'sech FPS
Polytensid 55	Metazinc	Alcali 20%
Pâte cuivrée	GNR BP PRO	Metazinc
Graisse silicone 500 (essai)	WS ZINK 80/81 (peinture riche en zinc)	Acide chlorhydrique Quadrimex
Lub'sech FPS	Gaz ront	Diluant SRB
Concentré de shampoing carrosserie	Acide chlorhydrique Quadrimex	Acide chlorhydrique Kuhlmann
Metazinc	Peinture galva brun rouge	Brugal galvapas 320
Poly S2	Acide chlorhydrique Kuhlmann	Bonderite
Gaz ront	Brugal galvapas 320	Zincarev blok 107
Lubrifiant FPS (essai)	Alcali 20%	Polytensid 55

Agents chimiques émis

Rechercher un agent émis

N'afficher que les produits incomplets pour la hiérarchisation

Exporter (.docx)

N'afficher que les produits à traiter en priorité

SEIRICH
Évaluer le risque chimique

Version du référentiel à jour. Pour en savoir plus sur les modifications apportées par ce référentiel, consulter www.seirich.fr

Synthèse de l'inventaire | Hiérarchisation | Risque résiduel | Plan d'action

Tous les établissements | Sélectionner une unité de travail | Sélectionner un poste de travail

61 Produits étiquetés

0 Agents chimiques émis

1 Produits CMR 1A/1B

0 Agents chimiques émis CMR

0 Produits sans FDS

32 Produits incomplets

Informations générales

Important : Le "Convertisseur Clarice/Colibrisk vers Seirich" disponible dans le menu "Outils et documents", écran "Documents" est compatible uniquement jusqu'à la version 6 de Colibrisk et n'est plus mis à jour. Il ne sera plus disponible dans les prochains mois.

Important : avant de commencer une évaluation des risques avec Seirich, il est **indispensable de lire le document** « Démarche d'évaluation dans Seirich » disponible dans l'onglet « Documents » du menu « Outils et documents ». Il vous précisera la méthodologie utilisée dans Seirich.

Des **webinaires de présentation** sont disponibles sur la chaîne YouTube Seirich. N'hésitez pas à les consulter pour connaître toutes les fonctionnalités de l'application. Une aide en ligne contextualisée est également disponible directement dans l'application, via le bouton "?" en haut à droite de chaque page.

Nouveaux documents

Avant d'utiliser pleinement le logiciel, nous vous invitons à consulter la « **Notice d'installation et de gestion** » qui vous donnera toutes les **astuces pratiques et techniques** pour optimiser votre utilisation quotidienne de Seirich. Comment et où l'installer ? Comment gérer mes fichiers .ser ? Comment le logiciel se met à jour ?

Avant d'importer un fichier Excel (base de données Produits ou Substances), n'hésitez pas à consulter le document « **Aide à l'import Excel** » où vous trouverez la description de tous les champs et comment les remplir convenablement.

Ces deux documents sont disponibles dans le Menu « Outils et documents », onglet « Documents ».

Pour **vous tenir informés des actualités et des nouveautés** sur les risques chimiques, abonnez-vous à la page Linkedin « Risques chimiques ».

Formez-vous à l'évaluation et la prévention des risques chimiques. Un cursus complet existe à l'INRS et des formations spécifiques sont disponibles auprès des partenaires ; contactez-les !

De plus, **des référents Seirich peuvent vous aider** et vous accompagner dans votre démarche de prévention des risques. Contactez le référent du service prévention de votre Carsat ou de l'un des partenaires du projet (France Chimie, UIMM, CNPA, Fipec/Sipev, MSA, Direccte).

Nouveautés - Versions 3.2.0 et suivantes

La version 3.2.0 et les suivantes proposent notamment une **nouvelle approche quant à la gestion des substances**. Vous pouvez constituer une base « substances » à partir des données issues du logiciel et de vos propres données afin d'optimiser les informations les concernant et de pouvoir mieux les exploiter. Cette base substances pourra être exportée et utilisée dans d'autres inventaires.

Pour en savoir plus sur l'ensemble des nouveautés de la version 3.2.0, 3.2.1 et 3.2.2, **visionnez la vidéo** consacrée sur YouTube ou consultez cette FAQ.

Nouveautés réglementaires - VLEP

Les décrets des 9 décembre 2020 et 12 avril 2021 fixent des **valeurs limites d'exposition professionnelles** réglementaires contraignantes pour 12 substances et l'arrêté du 3 mai 2021 établit des valeurs limites d'exposition professionnelle réglementaires indicatives pour 2 substances. L'entrée en vigueur de ces nouvelles valeurs limites est fixée respectivement au 1er février 2021, 1er juin 2021 et 1er juillet 2021. Pour plus d'informations, consultez la FAQ Seirich.

Nouveautés réglementaires - Classifications CMR

La 17ème adaptation au progrès technique du CLP (règlement UE 2021/849 du 11 mars 2021) fixe de **nouvelles classifications harmonisées CMR 1A ou 1B** pour certaines substances. Ces changements entreront en vigueur le 17 décembre 2022. Pour en savoir plus, consultez la FAQ Seirich

Exporter (.docx)

ISSN 1831-9424

European Commission

JRC SCIENCE FOR POLICY REPORT

Best Available Techniques (BAT) Reference Document for the Ferrous Metals Processing Industry

Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control)

Aries, E., Gómez, Benavides, J., Mavromatis, S., Klein, G., Chronopoulos, G., Roudier, S.

2022

https://eippcb.jrc.ec.europa.eu/reference/ferrous-metals-processing-industry

EGGA GALVANIZING EUROPE