



EUROPEAN SURFACE TREATMENT ON ALUMINIUM

The IPPC Reference Documents on
Best Available Techniques
for the Surface Treatment of Metals and Plastics:

**ESTAL: the ADVOCATE for the
Surface Treatment of Aluminium**

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You can read the instruction of how to work with this comment sheet and action list by clicking on the link

Comments from	No	BREF reference				Comment	Your proposal for modification
		Ch	Section	Pag	Para.		
Thomas Becker	1	5	5	350	point 58	Point 58 is not applicable to BAT anodizing.	leave this point out for anodizing
Thomas Becker	2	5	5	350	point 59	Point 59 is not applicable to BAT anodizing.	leave this point out for anodizing
Thomas Becker	3	5	5	350	point 62	Point 62 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	4	5	5	351	point 63	Point 63 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	5	5	5	351	point 64	Point 64 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	6	5			point 65		leave this point out for anodizing
Thomas Becker	7	5					leave this point out for anodizing
Thomas Becker	8	5	5	351	7	Point 67 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	9	5	5	351	point 68	Point 68 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	10	5	5	351	point 69	Point 69 is not relevant for anodizing with surface	leave this point out for anodizing
Thomas Becker	11	5	5	351			leave this point out for anodizing
Thomas Becker	12	5	5	352	71	Point 71 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	13	5	5	352	point 72	Point 72 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	14	5	5	352	point 73	Point 73 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	15	5	5	352	point 74	Point 74 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	16	5	5	352	point 75	Point 75 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	17	5	5	352	point 76	Point 76 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	18	5	5	352	point 77	Point 77 is not relevant for anodizing.	leave this point out for anodizing
Thomas Becker	19	5	5	352	point 78	Point 78 is not relevant for anodizing.	leave this point out for anodizing

not relevant for anodizing

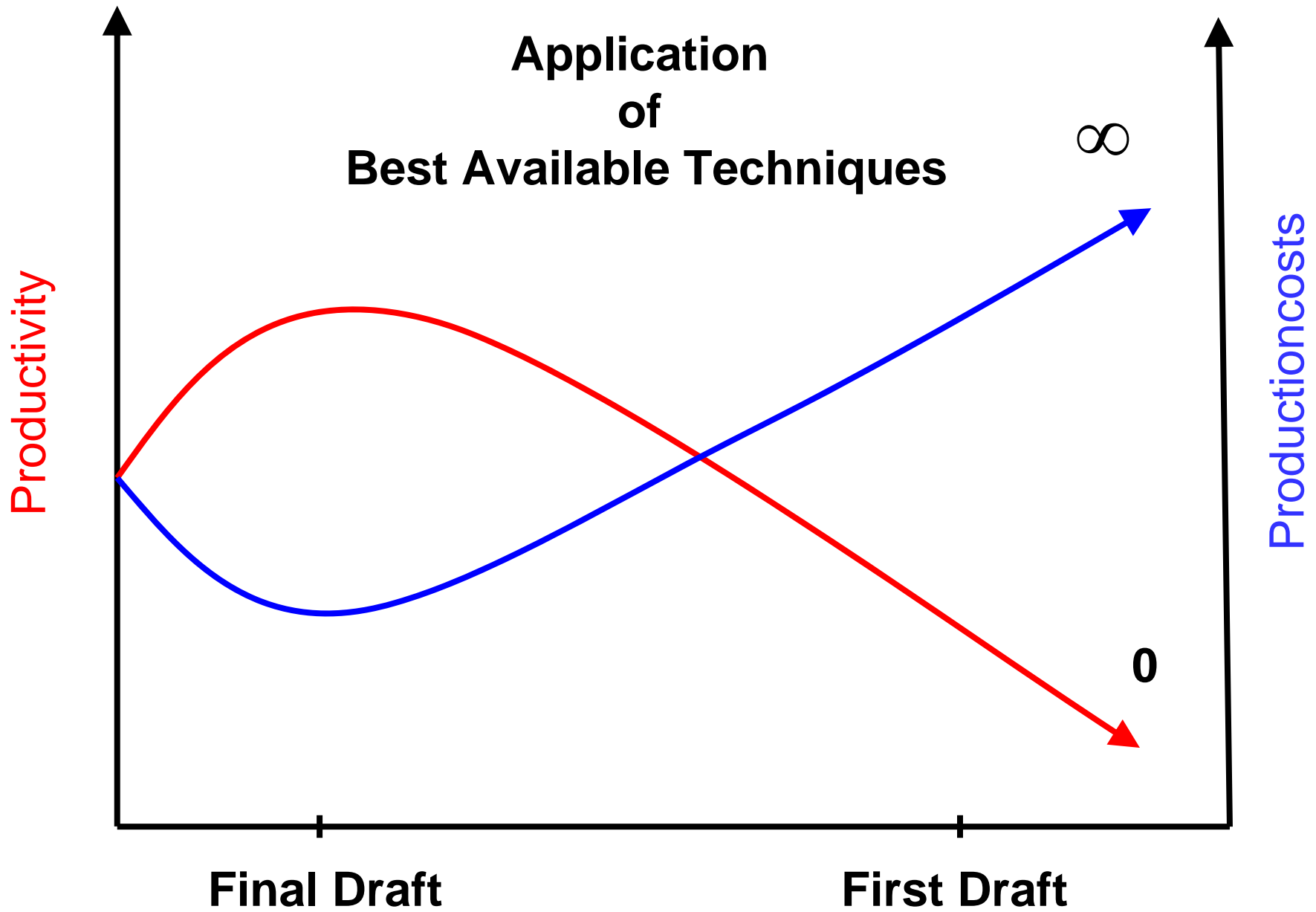
leave this point out for anodizing

10 Arguments

How to distinguish

ANODIZING from ELECTROPLATING

1. Anodizing means "light metals" –
Electroplating stands for "heavy metals"
2. Anodizing means "long life corrosion resistance"
3. Anodizing means no potential harm to the environment
4. Anodizing is incommensurable: (see text)
5. Anodizing is unique: (see text)
6. Anodizing causes only "salty water": (see text)
7. Anodizing produces valuable wastes: (see text)
8. Anodizing needs large bathes: (see text)
9. Anodizing depends on energy costs: (see text)
10. Anodizing does the opposite of Electroplating: (see text)



4.17.3 Re-use and recycling of waste

Description

Wastes that cannot be recovered internally may be valorised externally by third parties.

To assist with this, it may be good practice to keep these waste streams separate to maintain a concentration of components that makes recovery viable or to prevent contamination, such as contamination of aluminium hydroxide sludge with heavy metals.

7 **... aluminium hydroxide from anodising
can be precipitated and recycled,
for example as a coagulant for sewage treatment.**

- manufacture of usable metal concentrates
- phosphoric and chromic acids, spent etching solutions, etc.
- aluminium hydroxide from anodising can be precipitated and recycled, for example as a coagulant for sewage treatment. (Note: the rinsing waters from colouring and sealing processes may contain heavy metals and it is advisable to collect sludge separately from these waste water streams if re-use is required)
- inorganic chemical companies and the glass and ceramics industry which use metals or metal compounds intentionally in the manufacture of products.

5.1.6.4 Recycling and recovery

After applying techniques for the prevention and reduction of losses (see Section 5.1.6.4 above), it is BAT to (see Section 4.17.3):

... aluminium hydroxide suspension
from aluminium surface treatments
to precipitate phosphate
from the final effluents

at municipal waste water treatment plants

The overall efficiency can be raised by external recycling. However, third party routes have not been validated by the TWG for their cross-media impacts or their own recovery efficiency.

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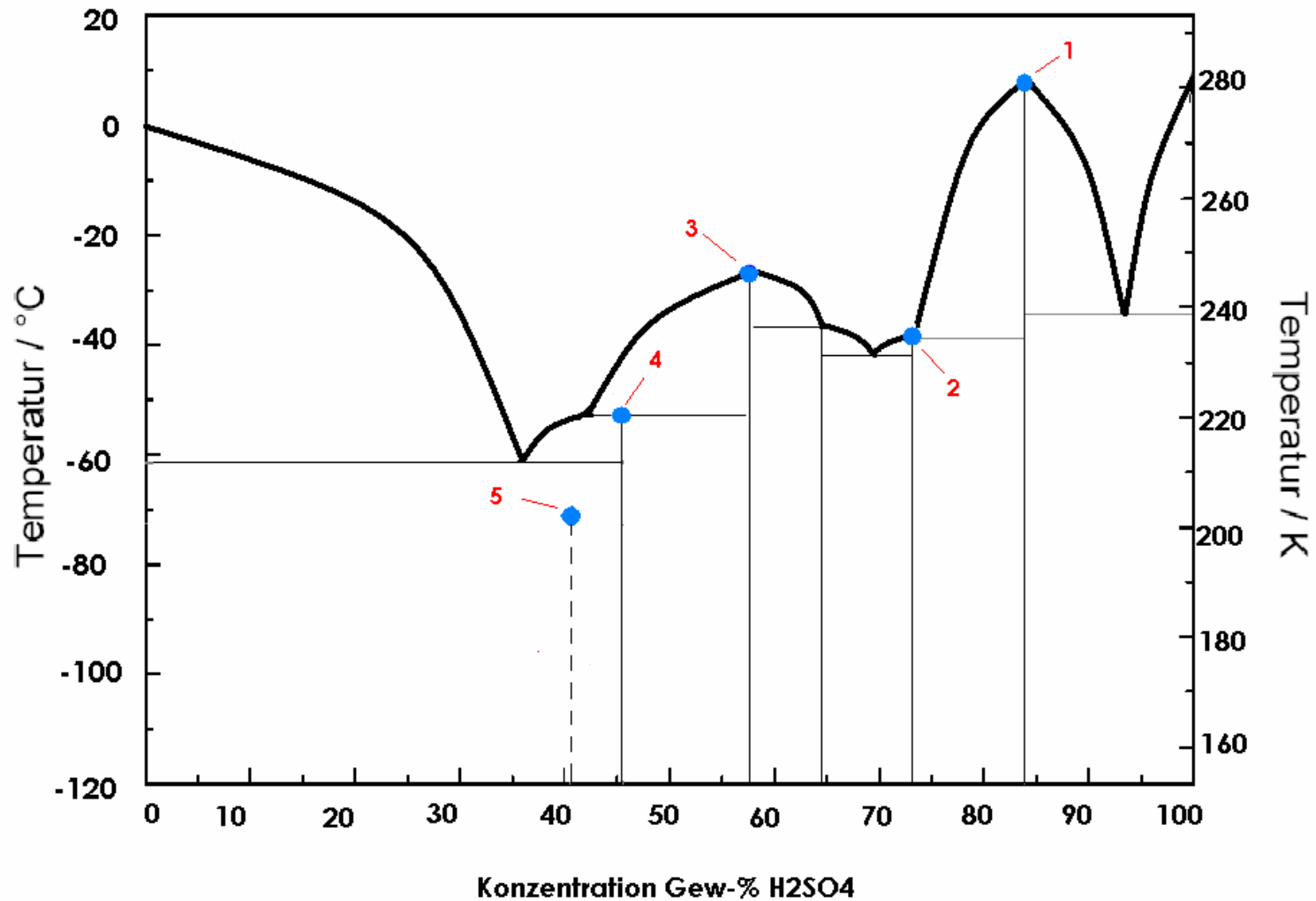
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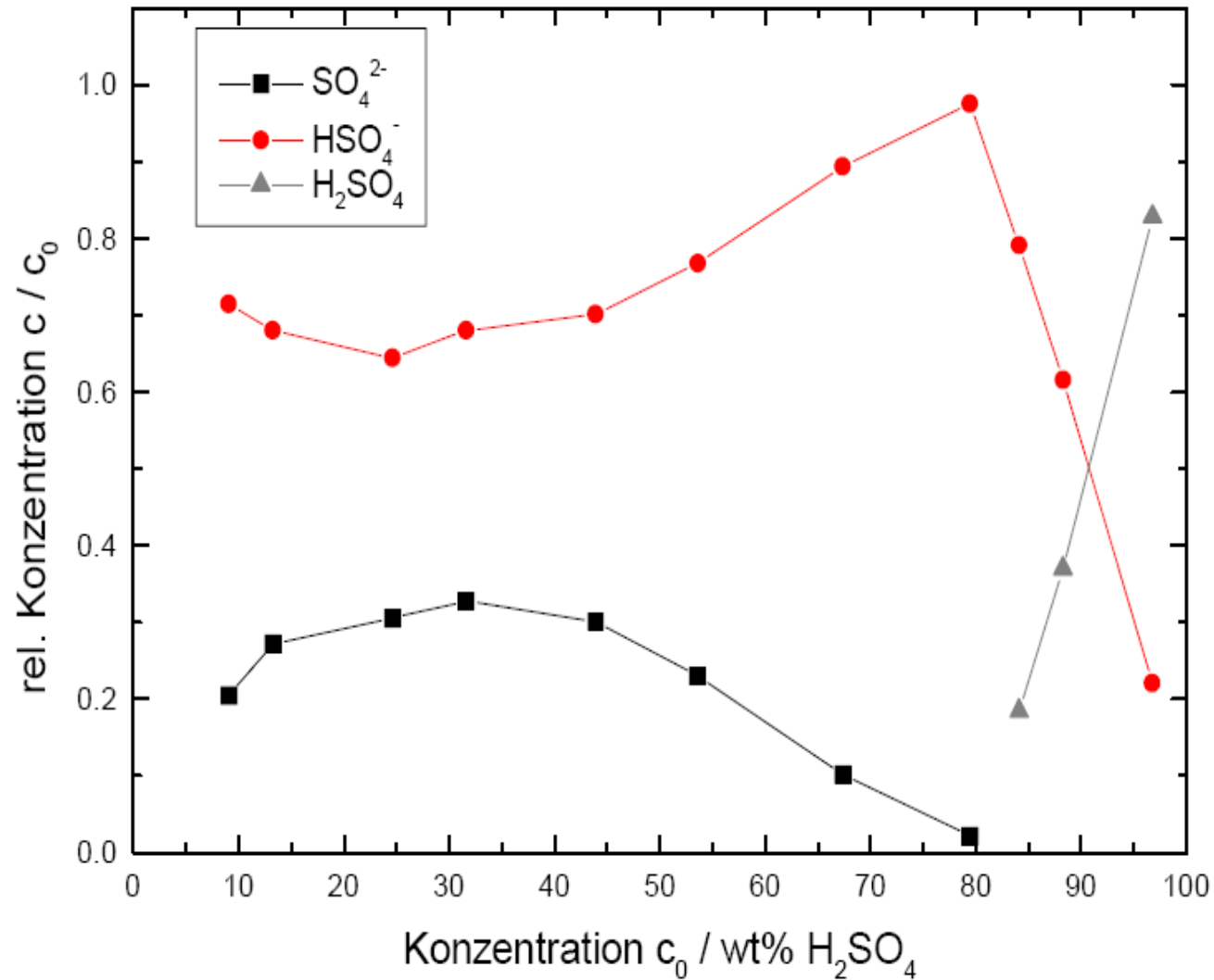
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Phase diagramm of the system Water/Sulfuric Acid: The System contains 5 compounds. The compound **1** at 84,5 % H₂SO₄ is H₃O⁺ HSO₄⁻



The relative concentration c/c_0 of the species SO_4^{2-} , HSO_4^- , and H_2SO_4 in aqueous solutions. Below 84,5 % the molecule H_2SO_4 does not exist any longer!



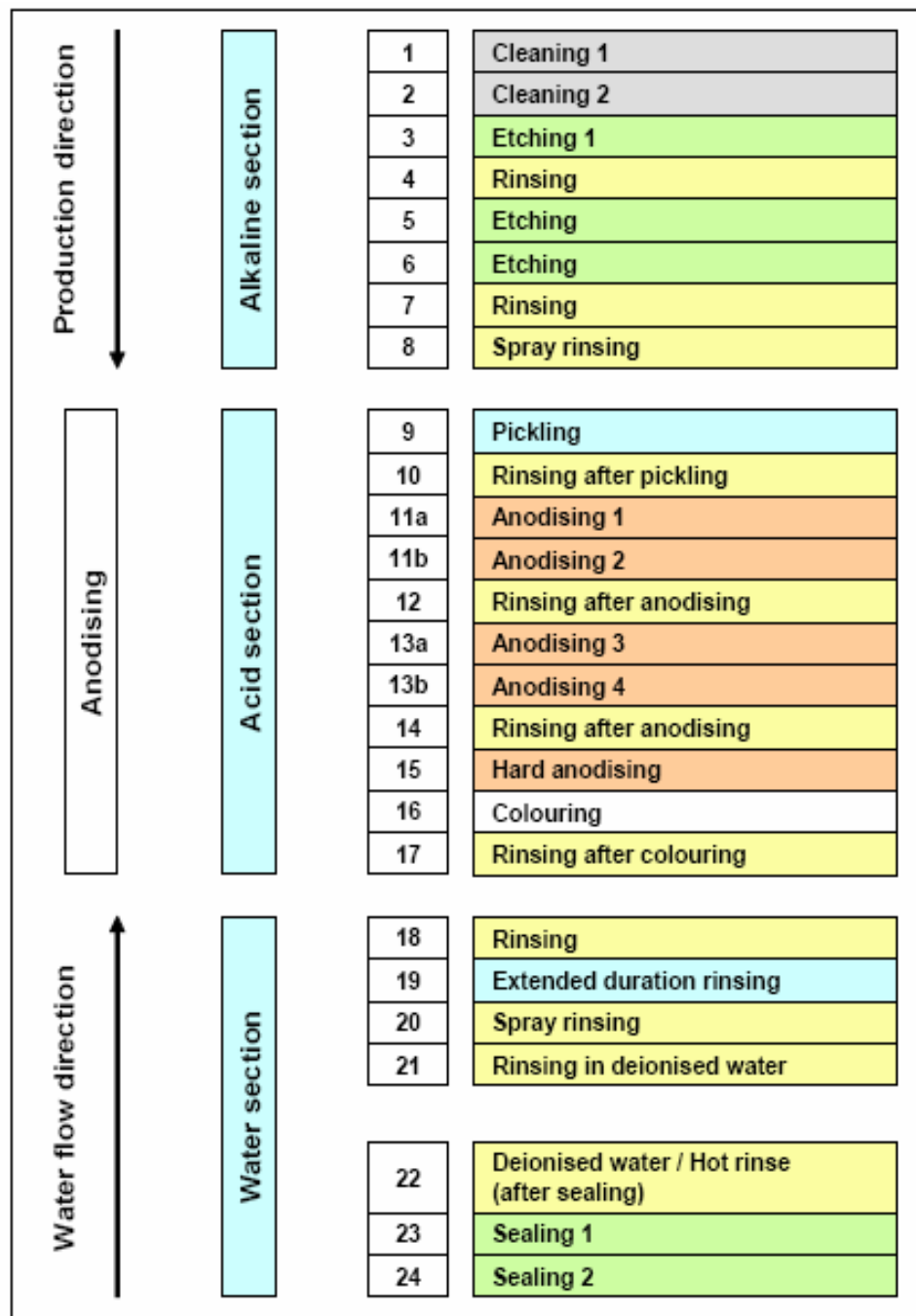


Figure 2.10: Typical anodising plant layout

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5.2 BAT for specific processes

5.2.11 Anodising

In addition to the generic BAT, any relevant specific BAT for processes and chemicals (described above) apply to anodising. In addition, the following BAT apply specifically to anodising:

- heat recovery: It is BAT to recover the heat from anodising sealing baths using one of the techniques described in Section 4.4.3.
- recovery of caustic etch: It is BAT to recover caustic etch (see Section 4.11.5) if:
 - there is a high consumption of caustic solution
 - there is no use of any additive to inhibit the precipitation of the alumina
 - the etched surface achieved meets specifications.
- closed loop rinsing: It is not BAT for anodising to use a closed rinsed water cycle with ion exchange, as the chemicals removed are of similar environmental impact and quantity to the chemicals required for regeneration
- use PFOS-free surfactants (see Section 5.2.5.2).

Best Available Techniques for the Surface Treatment of Aluminium (and light metals)