

An aerial photograph of a frozen lake. The words "SIAPWS" are written in large, dark, hand-drawn letters across the ice. The ice has a textured, crystalline appearance with some snow or frost on top. The background is a vast, flat expanse of blue-tinged ice.

TGD on FGC treatment

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All about water

Background

- Flue gas condensation (FGC) and re-use of condensate are Nordic specialities with potential to spread to Northern Europe – areas with district heating as municipal heat source – or other plants with a large heat production
- Nordic session on FGC and FGC treatment at ICPWS-17 in Prague, September 2018 → interest from the international community and acceptance as a future PPC topic
- A Technical Guidance Document (TGD) is the format of introducing FGC technology internationally – it has the power of an international standard and the ability to penetrate the power plant chemistry community fast and deeply

Motivation

- FGC and FGC re-use are economically and environmentally sound technologies – up to 20 % more heat production on the same amount of fuel. Improves flue gas cleaning over conventional techniques and saves drinking water or natural resources for production of technical water suitable for make-up water etc.
- The technology is not straightforward – couplings between flue gas rinsing and condensate treatment, much more load variation than usual for water treatment, operation demands understanding and skills from the operators
- The technology presents a niche where Nordic vendors have an advantage when it spreads to other parts of especially Europe

Common structure of a TGD

1. Nomenclature and Definitions
2. Introduction and Purpose
3. Background
4. System Description
5. Principles
6. Guidance (tables, guidelines)
7. Additional advice
8. Road Map to Customization
9. References



Introduction, common to all TGDs

The technical stuff

Ending remarks, common to most TGDs

Rough outline of a TGD on FGC treatment

1. Nomenclature and Definitions
2. Introduction and Purpose
3. Background
4. System Description
 1. Technology for flue gas condensation
5. Treatment of condensate
 1. Treatment in relation to environmental or plant conditions
6. Treatment vs Flue Gas Cleaning Technology
 1. Simple systems → advanced systems
7. Design Considerations
 1. The unit operations involved
 2. Instrumentation recommended for supervision
8. Operation of FGC Plants
 1. Condensed operational experiences
9. Road Map to Customization
10. References

The initial process up to IAPWS meeting

Initial outline

- Content list
- Organisation of work
- Time frame

Workshop

- Establish Nordic TG – center group for writing, reference for commenting
- Detail outline and contents → Tight bullet list for each section

Presentation for PCC

- Discussion and adaption of outline – input from PCC
- Formation of TG for preparation of TGD

TGD preparation process – minimum 1 year

Writing the draft

- Group of writers and editor, group for comments
- Iterative process until TG satisfied

PCC hearing phase

- Circulation to PCC members for comments
- Adaption of draft according to comments

IAPWS editorial committee

- Check that draft satisfies IAPWS rules and language
- Adaption of draft to final IAPWS format

Approval by IAPWS EC and release

- Approval on IAPWS meeting or by postal ballot
- Publication on the IAPWS web-site

Points to discuss

- Organisation on the Nordic level – do we have the knowledge necessary to produce a TGD?
- Content – what should be included/excluded? Let's do a bit of brainstorming!
- How do we best involve our colleagues?