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Technologies for Sustainable Development
European IPPC Bureau

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TECHNICAL WORKING GROUP (TWG)
ON BEST AVAILABLE TECHNIQUES (BAT)
FOR THE MANUFACTURE OF

CERAMIC PRODUCTS (CERAMICS)

KICK-OFF MEETING
1-2 December 2003

MEETING REPORT

A. FOREWORD

1. The Technical Working Group (TWG) on Best Available Techniques (BAT) for the Manufacture of Ceramic Products (CERAMICS) held its first plenary meeting at the Institute for Prospective Technological Studies (IPTS) of the European Commission in Seville, Spain on 1-2 December 2003, with Mr D. Litten, Head of the European IPPC Bureau, in the chair.
2. The meeting was held within the framework of the implementation of Council Directive 96/61 of 24 September 1996 concerning Integrated Pollution Prevention and Control (the IPPC Directive), in order **to initiate the exchange of information on Best Available Techniques for the Manufacture of Ceramic Products**, and, as a result of this exchange, to come up with a reference document called the CERAMICS BREF (BAT reference document for the Manufacture of Ceramic Products).
3. The meeting gathered 29 participants from Member States, Accession Countries, Industry and the European Commission. The agenda for the meeting followed the outline of the **background paper** dated 23 October 2003 that had been prepared by the European IPPC Bureau as an introductory material for the meeting.

B. REPORT

The following is not a detailed report of the meeting; only the main discussion points and conclusions are addressed.

Scope of the work for CERAMICS TWG and BREF

4. The TWG discussed the relation between CERAMICS and the IPPC Directive and accepted that the starting point for the work is the definition given in Annex I:

“ 3.5. Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m³ and with a setting density per kiln exceeding 300 kg/m³. ”

The definitions for Installation (Article 2.3) and the Adding-up Principle (Annex I, clause 2) given in the IPPC Directive and working definitions for Kiln Capacity, Setting Density and Production Capacity were discussed and illustrated with some examples. The TWG agreed on working definitions for Kiln Capacity, Setting Density and Production Capacity as below:

‘Kiln Capacity’ means the fired volume of the kiln and ‘Setting Density’ means the mass of the ware to be fired without firing auxiliaries in the fired volume of the kiln in reference to the overall fired volume of the kiln.

Daily ‘Production Capacity’ in general is understood as the potential output an installation can have in 24 hours, although this technical capacity may not necessarily reflect current operating practice.

5. The TWG discussed a working definition of CERAMICS. The following working definition of ceramic products was accepted by the TWG:

Generally the term CERAMICS (Ceramic products) is used for inorganic materials (with possibly some organic content), made up of non-metallic compounds and hardened by a firing process. In addition to clay based materials, today CERAMICS include a multitude of products with a small fraction of clay or none at all. CERAMICS can be glazed or unglazed, porous or vitrified.

6. Regarding the boundaries with other BREFs, the Waste Incineration BREF should be taken into account because of possible firing processes with mineral oil wastes or solid wastes. The TWG will try to address a current lack of knowledge about that issue.

7. The TWG discussed the main features of the Ceramic Industry and agreed that the sector of ‘**Calcined Clays**’ should be added to the other seven main sectors of CERAMICS, which are:

- **Wall/Floor Tiles**
- **Bricks and Roof Tiles**
- **Table/Ornamental Ware**
- **Refractory Products**
- **Sanitary Ware**
- **Technical CERAMICS**
- **Vitrified Clay Pipes.**

The addition of Calcined Clays involves firing processes of ceramic-granulates in rotary kilns and fluidised beds, the products of which are either intermediates for the manufacture of final ceramic products or they are ceramic products in their own right.

Regarding geographic and economic aspects, the TWG agreed that there is considerable international trade not only in tiles, refractory products, table- and ornamental ware, but also in technical CERAMICS, clay pipes and sanitary ware.

Approach for the CERAMICS BREF work

8. The TWG agreed, that due to the wide variety of ceramic products possible the approach to take should focus on summarising the various CERAMICS sectors with reference to the application of the different types of products into two groups covering also the key environmental aspects and addressing common issues for all CERAMICS. Common issues for all CERAMICS include the raw materials, the additives, the production techniques and the product properties.

A group of **Coarse CERAMICS** includes the sectors Bricks and Roof Tiles, Vitrified Clay Pipes, Refractory Products and Calcined Clays.

A group of **Fine CERAMICS** includes the sectors Wall/Floor Tiles, Tableware and Other Household CERAMICS, Sanitary Ware and Technical CERAMICS.

Regarding Technical CERAMICS, the TWG agreed that this sector is part of the scope of the work, but the initial opinion was, that the manufacture of Technical CERAMICS probably does not meet the threshold criteria of Annex I because of too low production capacities at known installations or too low setting densities.

Therefore the TWG will provide information to clarify this issue.

Structure of the CERAMICS BREF

9. The TWG agreed on a possible structure for the CERAMICS BREF. This possible structure is presented as an annex to this report. The TWG's attention was drawn to the importance for the whole work of the chapters and sub-chapters regarding the 'techniques to consider in the determination of BAT' and the 'BAT' chapter.

CERAMICS BREF Information requirements

10. All TWG members were asked to provide information under the CERAMICS BREF proposed structure as given in the Annex and explained in further detail in the BREF Outline and Guide which can be found at <http://eippcb.jrc.es>. The European IPPC Bureau is especially interested in the Member States and Accession Countries views of environmentally beneficial techniques (to fit chapter 4 of the BREF) and their opinion about what constitutes BAT within the framework of the CERAMICS BREF (to fit chapter 5 of the BREF) and any work carried out to justify this opinion. Member States and Accession Countries are also invited to provide general information on the CERAMICS industry in their country (number of plants, location of plants, manufactured ceramic products...).

11. Some TWG members announced that they had already gathered and provided additional information on CERAMICS as mentioned above, without undermining the fact that all TWG members are expected to contribute to the exchange of information.

12. Already provided information:

CERAME-UNIE: Proposed Best Available Techniques (BAT) Reference Document (BREF) For The European Ceramic Industry

AUSTRIA: Austrian Study On State Of The Art Of Manufacturing Ceramic Goods By Firing

BELGIUM: Flemish BAT Report On The Ceramic Industry (Brick And Roof Tile Industry)

GERMANY: Exemplary Investigation Into The State Of Practical Realisation Of Integrated Environmental Protection Within The Ceramics Industry Under Observance Of The IPPC-Directive And The Development Of BAT Reference Documents

NETHERLANDS: Dutch Fact Sheets For The Production Of Ceramics

SPAIN: Integrated Pollution Prevention And Control In The Ceramic Tile Industry. Best Available Techniques (BAT).

The already provided information will as soon as possible be available on the EIPPCB workspace.

CERAMICS BREF planning

13. All TWG members were asked to provide the requested information **by the end of May 2004**, to enable the European IPPC Bureau to prepare the first CERAMICS BREF draft for autumn 2004, thus enabling a final version of the BREF to be ready by the end of 2005.

Site visits

14. TWG members were invited to propose remarkable CERAMICS installations for site visits in order to augment the European IPPC Bureau's expert and other TWG member's general knowledge of the Ceramic Industry. Any proposal for site visits should outline what techniques will be seen at the proposed sites so that any site visits can be well justified.

Michael Burkart

Seconded National Expert
European IPPC Bureau

Annex

Possible CERAMICS BREF Structure

- Executive Summary
- Standard Preface (see BREF outline and guide)
- 1. General Information
- 2. Applied Processes and Techniques
- 3. Current emission and consumption levels
- 4. Techniques to be considered in the Determination of BAT
- 5. Best Available Techniques (see standard introduction in BREF outline and guide)
- 6. Emerging techniques
- 7. Concluding remarks

Chapter 1	General Information				
<small>Combined</small> Chapter 2+3	Generic				
	Group 1	Sector 1	Sector 2	Sector 3	Sector 4
	Group 2	Sector 5	Sector 6	Sector 7	Sector 8
Chapter 4	Refer to Groups/Sectors under Applicability				
Chapter 5 BAT	Probably sector level BAT				