Council of Europe activity on enamels

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National Institute of Public Health 1

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COUNCIL OF EUROPE CONSEIL DE L'EUROPE 3

FOOD CONTACT ENAMELS

Thin layer of ceramic or glass bonded to a metallic substrate by fusion at temperatures above 480°C and used for:

- protection of the substrate underneath from corrosion and physical damage
- modification of structural characteristics of the substrate
- decoration

Enamels

- EC will not focus on inorganics in the near future
- Enamels vs ceramics:
  - **Metalic substrates**: cast iron, stainles steel, aluminium
  - Substances for glaze: similar to ceramics
  - Enamel manufacturing - lower temperatures than ceramics- melting of substrate: aluminium 660 °C, steel 780°C and 850°C, cast iron: 1200 °C
  - Main use : **cookware and baking trays**
- Draft decision – materials in contact with water: distinguish between enamels and ceramics

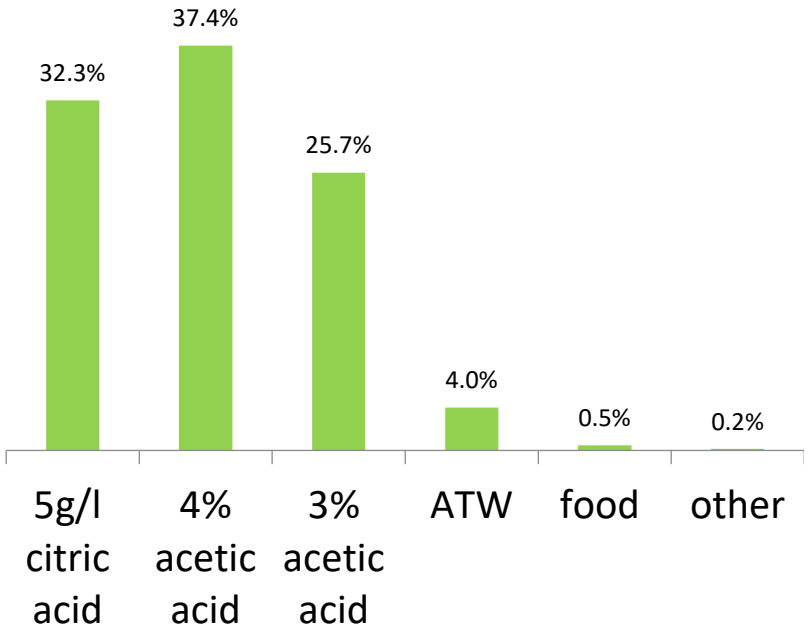
European survey

- Questionaire for CoE MS:
  - no. of tested samples in 2015-2018
  - test methods and test conditions applied:
    - simulant, time/temperature conditions, surface/volume ratio
  - limit values used for compliance
  - number of samples exceeding limits
  - type of article, colour of enamel layer, country of production
  - colour of each non-compliant enamel samples
- 7 countries sent results

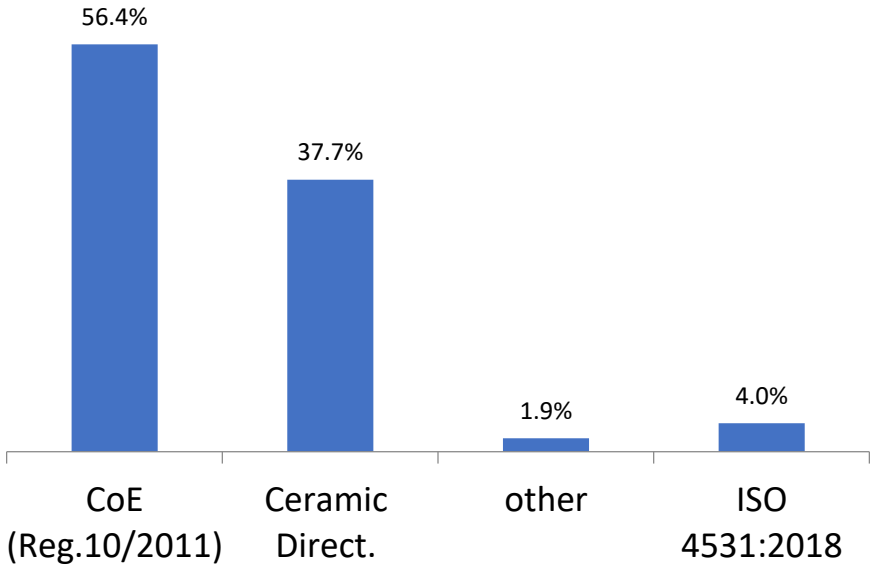
- Results available on https://freepub.edqm.eu/publications/

European survey

Simulants:



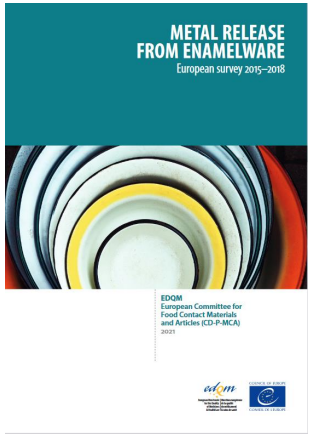
Time/temperature conditions:



Limit values:

- CoE Technical Guide on metals; CoE transitional values; EEA guidelines; ISO 4531; other (national measures)

Survey conclusions



- Control is limited
- Variety of test conditions and limit values used for compliance testing
- Limits exceeded - Co and Li, Al, As, Cd and Ni

Need for harmonisation of method, test conditions and limit values!

AdHoc group on enamels CoE
(Be, De, Es, Fr, Gr, Hu, Si, Tr, JRC)

Ad Hoc group CoE

Tasks:

- compiling scientific/professional information on the release of elements from enamel into foods and simulants (Be, De, Es, Si, JRC, Tr)
- identifying substances that are frequently used in the manufacture of enamels,
- **drafting technical guidance on food contact enamels**:
  - analytical method and test conditions,
  - specific release limits (SRLs)

Ad Hoc group CoE

Development of the method:

- Samples which release significant ammounts of elements (cooperation with industry)
- ISO 4531: specific test cells, covering of the edges of test plates for total immersion testing…?
- Reference foods – validation of simulant (cooperation with JRC, acidified tomato puree, artificial apple juice, others…)
- Comparison between release into food and simulants
- New simulants?

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- Elements of interest: Al, As, Ba, Cd, Co, Cu, Cr, Fe, Li, Mn, Mo, Ni, Pb, Sb, Ti, V, Zn

Last meeting in September

- Enamelled test plates had been supplied to De by the industry for release testing in the following weeks, using specific test cell (according to ISO 4531)
- Comparison between test cells and total immersion

Thank you for your attention