EURL-NRL-FCM Network: update on current activities

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AESAN meeting, 14 June 2022

The Joint Research Centre at a glance

2800 staff

nearly 70% of whom are scientific/technical staff.
Headquarters in Brussels and research sites located in five Member States.

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Improving analytical controls

Official Control Regulation (EU) 2017/625

- Harmonisation and access to test methods
- Assess performance of NRLs by proficiency testing
- Training
- Anticipation work
- Drafting technical guidance documents

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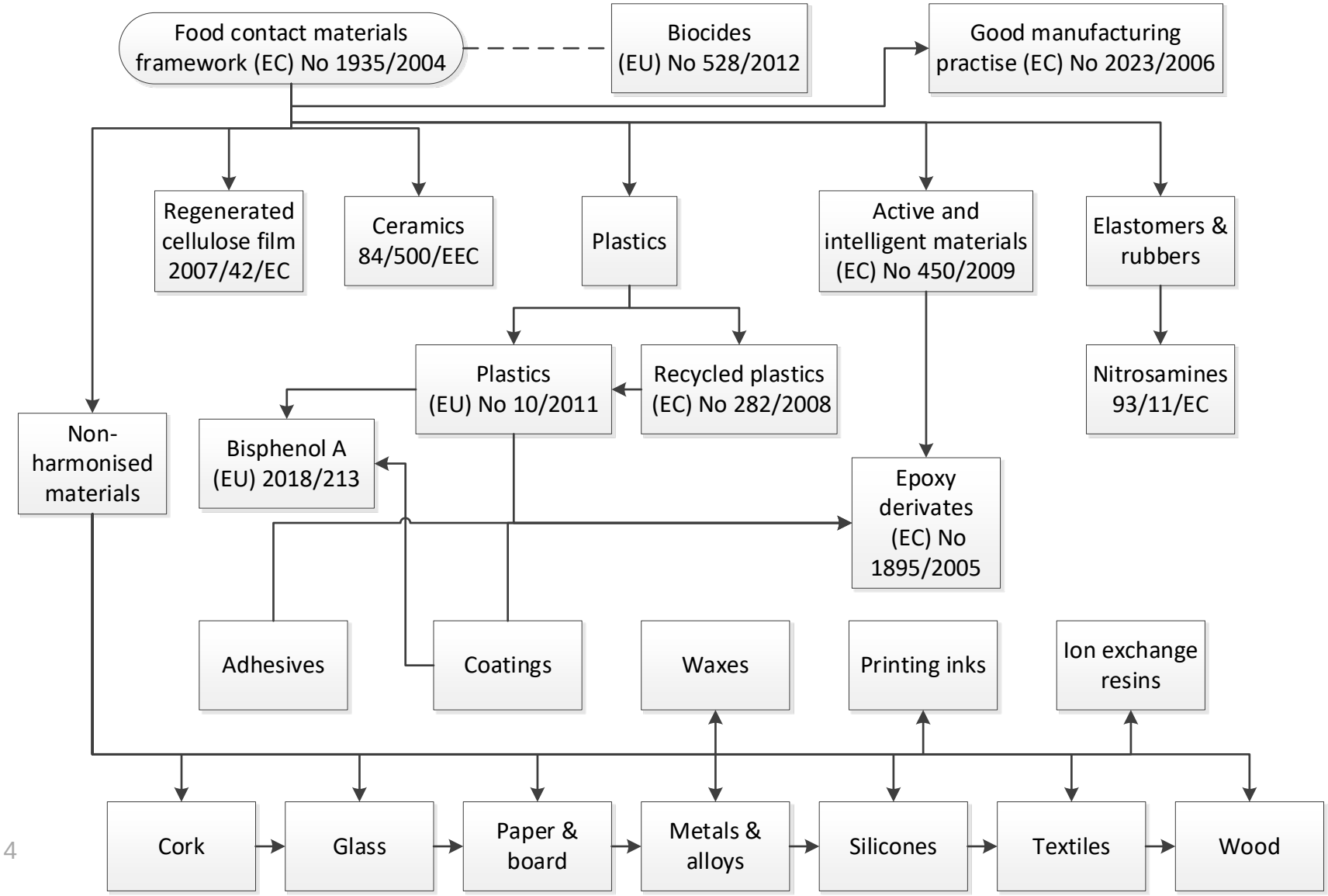
Overview EU FCM legislation



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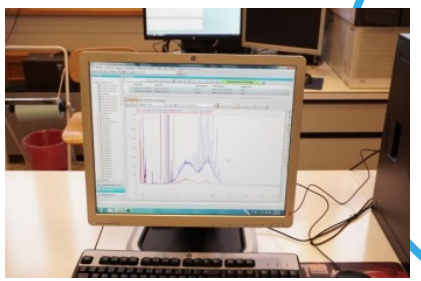
Topics covered by the JRC and EURL-FCM

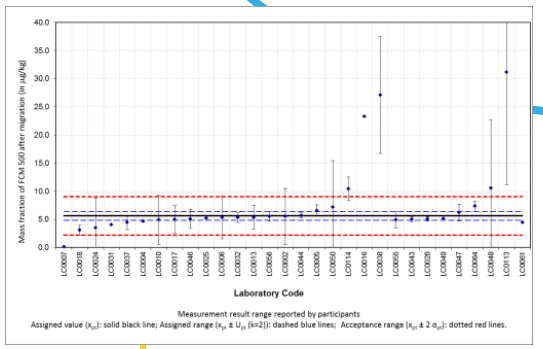
Training

Migration test methods
Ceramics, vitreous materials
Kitchenware test guideline
(Migration modelling)

Analytical methods
Method collection
Reference substances
Multi-analyte ((N)IAS)
Performance guideline revision
Proficiency testing



Mineral oil in food/FCM
Towards SOP for MOAH in infant formula



Recycling of plastics
Monitoring input-output

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SOP = standard operating procedure

Technical issues with analysis

- Many regulated substances — Multi-analyte methods
- Availability of calibrants
- Availability of validated analytical methods
- Accessibility of analytical methods from applicant dossiers
- Accreditation
- Non-intentionally added substances (NIAS)

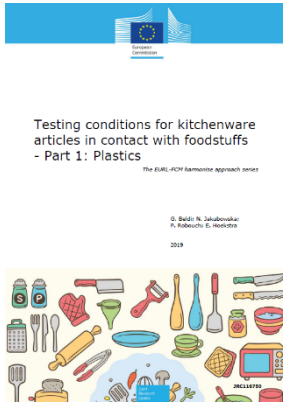
Kitchenware guidelines

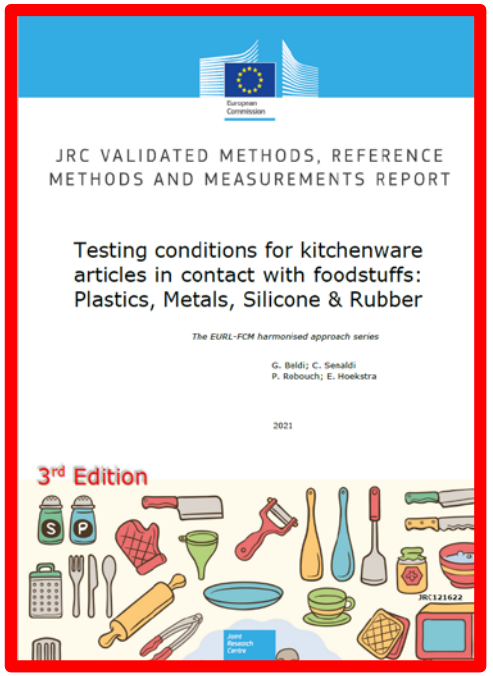
2019 – Guideline on "Testing conditions for kitchenware articles in contact with foodstuffs - Part 1: Plastics;

2020 – Guideline on "Testing conditions for kitchenware articles in contact with foodstuffs - Part 2: Plastics and Metals;

2021 – Guideline on "Testing conditions for kitchenware articles in contact with foodstuffs - Part 3: Plastics , Metals, Silicone & Rubber

2022 – paper & board planned





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Test conditions in Regulation (EU) No 10/2011

Selection of test temperature

Worst foreseeable contact temperature	Contact temperature to be selected for testing
T ≤ 5 °C	5 °C
5 °C < T ≤ 20 °C	20 °C
20 °C < T ≤ 40 °C	40 °C
40 °C < T ≤ 70 °C	70 °C
70 °C < T ≤ 100 °C	100 °C or reflux temperature
100 °C < T ≤ 121 °C	121 °C (*)
121 °C < T ≤ 130 °C	130 °C (*)
130 °C < T ≤ 150 °C	150 °C (*)
150 °C < T < 175 °C	175 °C (*)
175 °C < T ≤ 200 °C	200 °C (*)
T > 200 °C	225 °C (*)

(*) This temperature shall be used only for food simulants D2 and E. For applications heated under pressure, migration testing under pressure at the relevant temperature may be performed. For food simulants A, B, C or D1 the test may be replaced by a test at 100 °C or at reflux temperature for duration of four times the time selected according to the conditions in Table 1.

Selection of test time

Contact time in worst foreseeable use	►M7 Time to be selected for testing ◄
t ≤ 5 min	5 min
5 min < t ≤ 0,5 hour	0,5 hour
0,5 hours < t ≤ 1 hour	1 hour
1 hour < t ≤ 2 hours	2 hours
2 hours < t ≤ 6 hours	6 hours
6 hours < t ≤ 24 hours	24 hours
1 day < t ≤ 3 days	3 days
3 days < t ≤ 30 days	10 days
Above 30 days	See specific conditions

+ Specific conditions for contact times above 30 days at room temperature and below

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Test conditions

- **Plastics**: based on **expert judgement** on the “worst case” foreseeable conditions of use
  - not on the use intended by the producer
  - following principles of sections 2.1.3 and 2.1.4 (SM) and 3.1 (OM) of Annex V of Regulation (EU) No 10/2011
- Consumers use specific utensils **independently of the material**
  - Other materials: test conditions generally based on those for plastic FCM
- **Metals and alloys, silicone and rubber**: no material specific EU legislation
  - Except Art. 3 of Regulation (EC) No 1935/2004
  - **National legislation shall apply**
  - in absence, the test conditions in EURL guidelines apply

Test conditions

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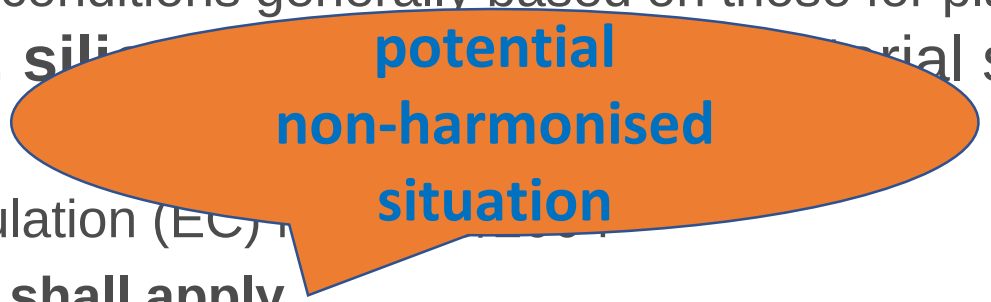
  - Other materials: test conditions generally based on those for plastic FCM
- **Metals and alloys, sili** rial specific EU legislation
  - Except Art. 3 of Regulation (EC)
  - **National legislation shall apply**
  - in absence, the test conditions in guidelines apply



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Food simulants

- Plastics: Regulation (EU) No 10/2011
- Metals and alloys, silicone and rubber: follow national legislation and in absence
  - Other guidance may be used, e.g. the practical guideline of the Council of Europe or recommendations and in absence of those
  - Food simulants for plastics
  - Metals: if tested with a food simulant for acidic foods (pH ≤ 4.5), additional testing in artificial tap water is not required.
- If for any reason the indicated food simulants are not appropriate, testing with food should be considered
- NOTE: results in food prevail over the results obtained in food simulant.

How to select the test conditions (1)

1. Select the main and subclass of the kitchenware article

Example

Food Serving Utensils for Cold/Ambient or Hot use	FSU/CAH1	Cup, Glass, Drinkware
	FSU/CAH2	Open flask, Carafe, Can, Jug
	FSU/CAH3	Bottle
	FSU/CAH4	Baby bottle, Teats
	FSU/CAH5	Tableware, Plate, Dishware, Serving stand
	FSU/CAH6	Food tray, Serving board, French fries box, Finger food bag, Snack box, Popcorn box
	FSU/CAH7	Thermos flask, Isothermic drinking beaker

How to select the test conditions (2)

Embossed; 260°C

2. If a **permanent label on the article** (e.g. embossed or engraved) defining limiting conditions of use or providing operating instructions, then adapt the test conditions accordingly **BUT** …
3. If instructions are **ONLY** on the packaging of the article (can be discharged) or not present at all, then select the test condition for that type of article from this guide
4. When this guideline assigns several possible test conditions for the same type of article, then select the **most severe** test conditions appropriate for the specific article

Not fixed; 232°C

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Selection of most severe test conditions

Table 2 for plastic:

Subclass	Use: cold (< 20 °C)	Use: Room Temperature	Use: hot (> 40 °C)	Use: storage (in months)	Sample prep: cut test specimen	Sample prep: intact article	Sample prep: part of it	Test type: actual use	Test type: article fill	Test type: migration cell	Test type: (total) immersion	Food/Food simulant: food	A	B	C	D1	D2	E	SM Conditions (only food simulants): time	Temp (°C)	label/instructions	S/V: Real	Real (infant/young)	6 (V < 0.5L or V > 10L)	6 impractical s/v	OM conditions	Notes
FSU/CAH1	x	x				y	x		y ; x		x	x	x	x			x		24 h	40		x	x	x		2	
		x	x			y	x		y ; x		x	x	x	x			x		2 h	70		x	x	x		3	followed by 24 h at 40 °C, if used for storage [OM2]
FSU/CAH2	x	x				x			x			x		x		x			24 h	40		x		x		2	
		x	x			x			x			x		x		x			2 h	70		x		x		3	followed by 24 h at 40 °C, if used for storage [OM2]

Cup, glass, drinkware

Open flask, carafe, can, jug,

Most severe

2 h 70 x x x 3 followed by 24 h at 40 °C, if used for storage [OM2]

How to select the test conditions (3)

5. If the prescribed test conditions may physically damage the test specimen, the migration tests shall be carried out under the “worst foreseeable conditions of use” to avoid these changes
6. If a food simulant causes changes to the test specimen, e.g. swelling, that does not occur with food, this food simulant is not suitable.
   - Perform the migration test using food or another equivalent food simulant not causing such changes
7. For articles used only under specific time, temperature conditions and/or for specific foods the selected test conditions and food simulants should comply with those specific conditions of use

Ceramics, glass, enamel

- Support revision Ceramic Directive 84/500/EEC
- More elements than Cd, Pb
- Realistic test conditions
  - compared to current 22°C for 24 h using 4% v/v acetic acid
- Repeated use
- Replacement of acetic acid for elevated temperatures

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Revision method performance guideline

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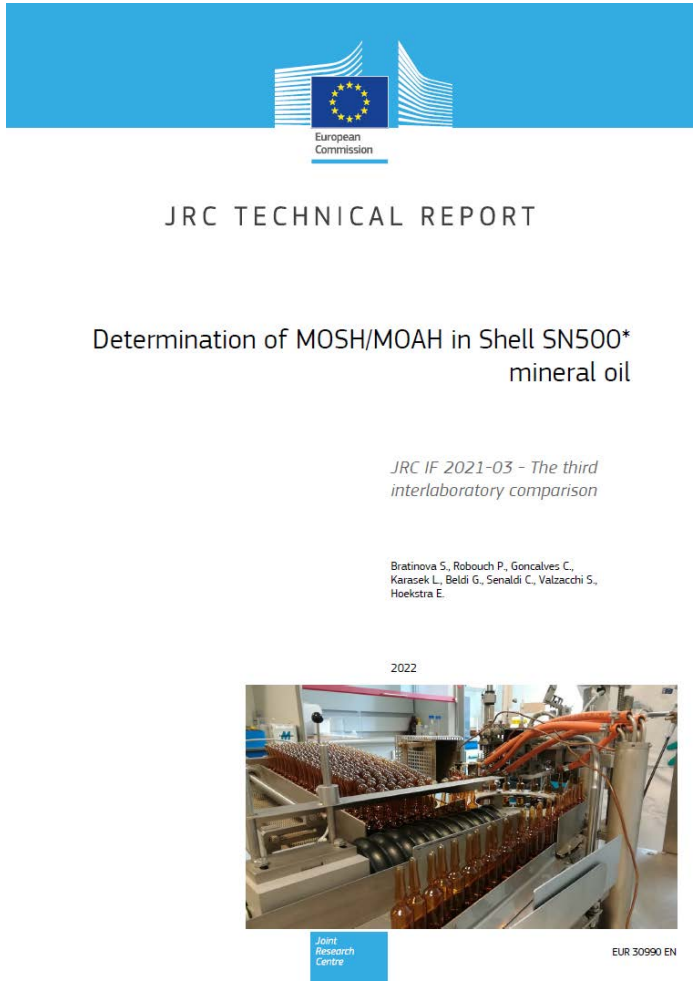
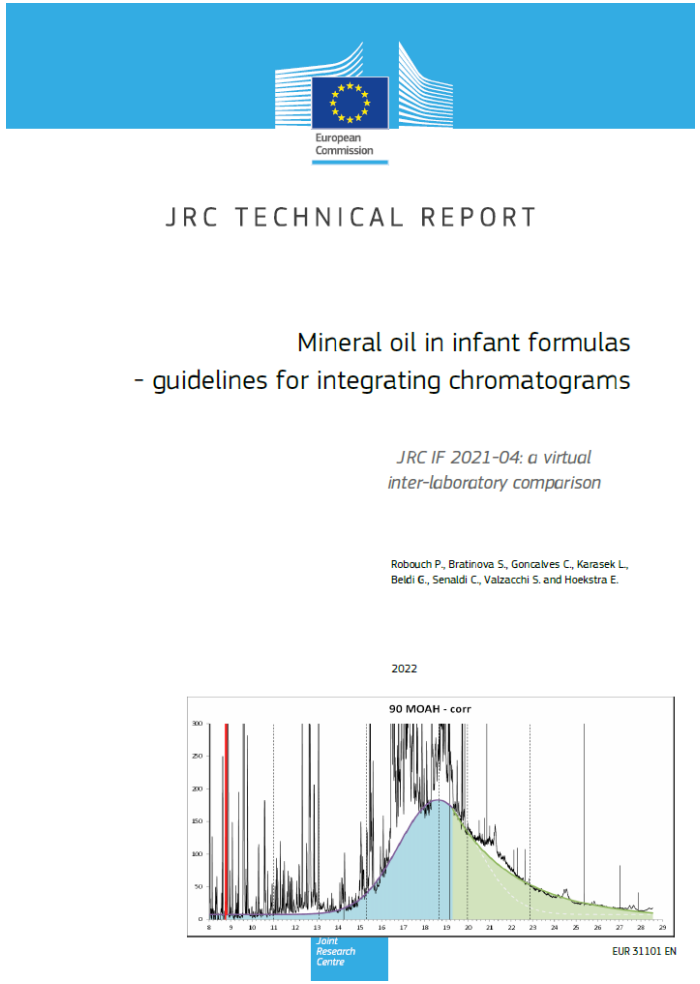
Mineral oil





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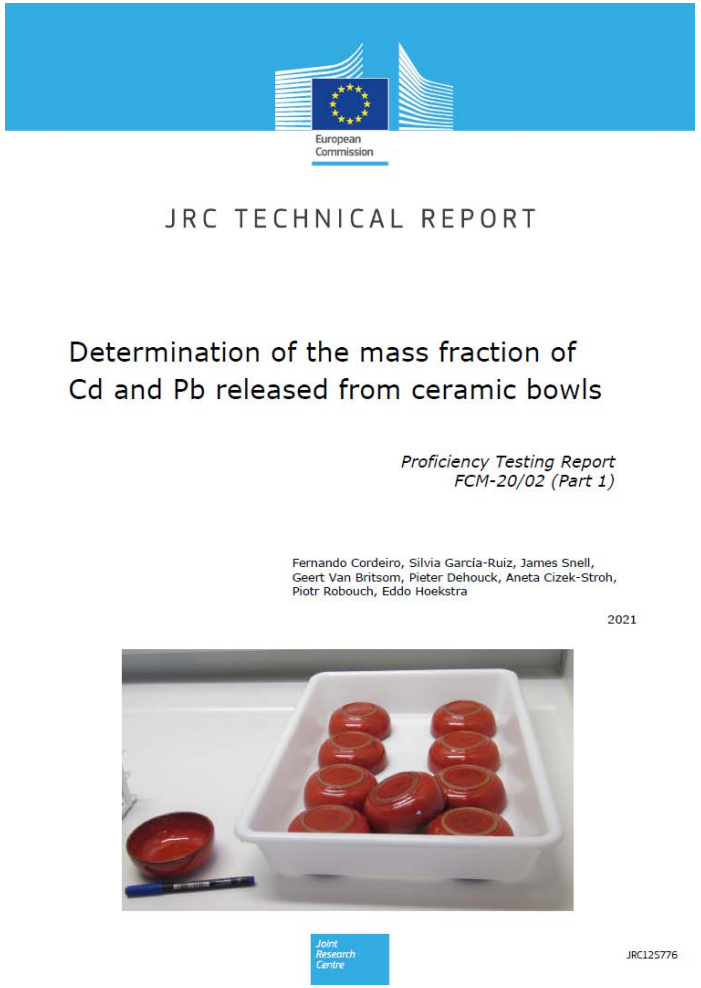
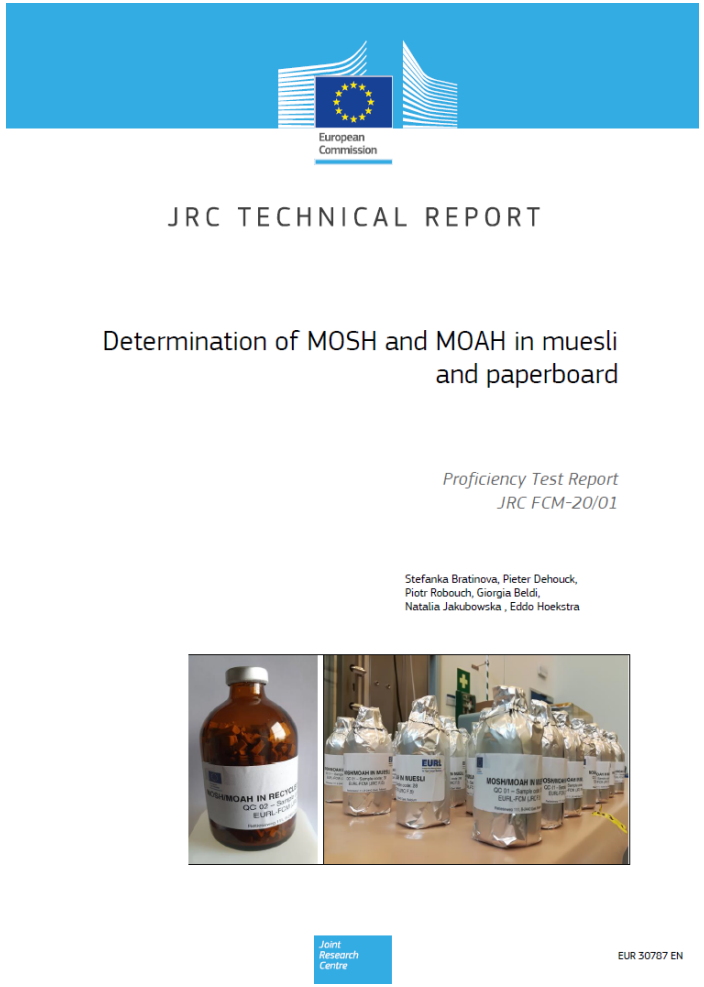
Proficiency tests





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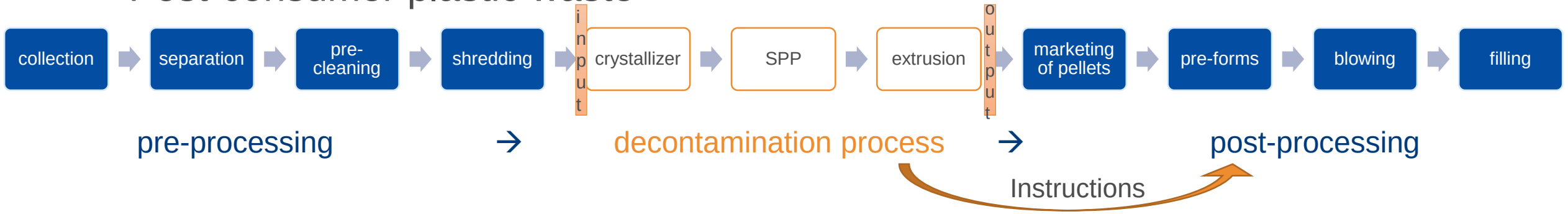
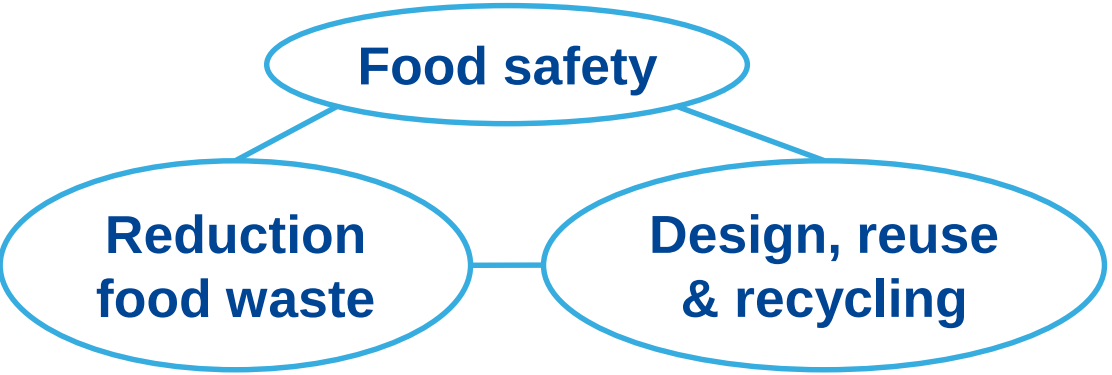
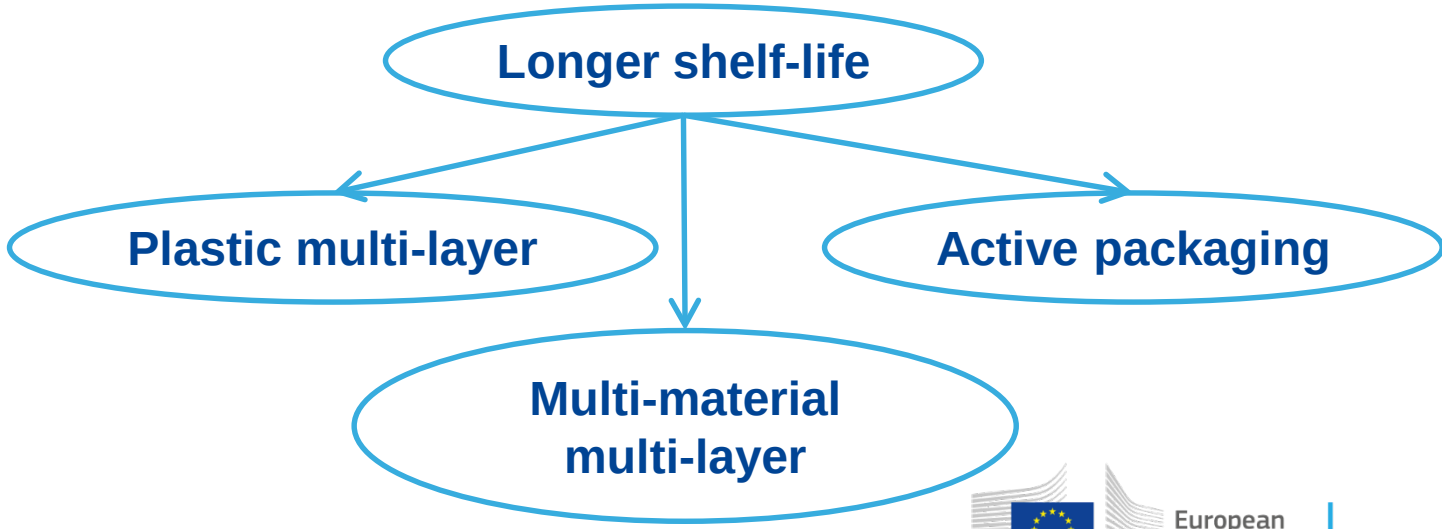
Recycling

Post-consumer plastic waste







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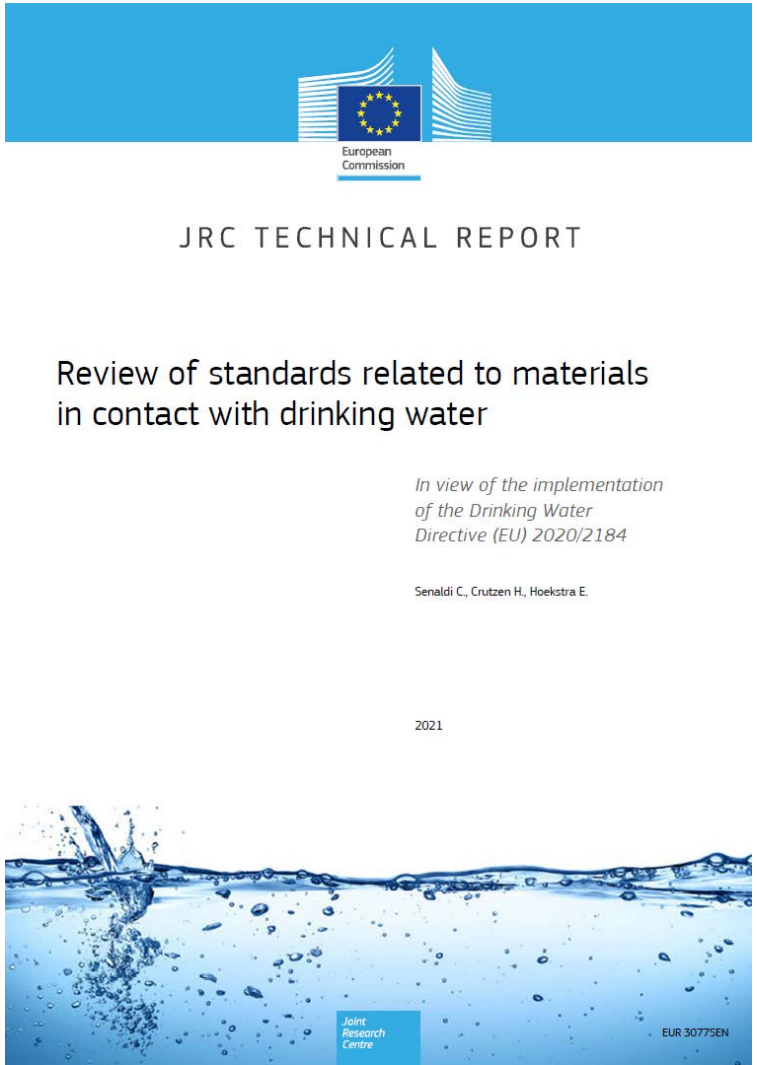
Drinking water contact materials



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Acknowledgements

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Thank you

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