

The use of reference materials in Finland

This review is based on:

EU survey on Reference Materials

as part of SMT Programme by

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Information is about 5 years old

but still the best available

The use of reference materials in Finland

200 questionnaires were sent to
Finnish accredited laboratories and
laboratories testing environment and food

66 of them replied (33 %)

- covers very well food and environment
- industry not representative

The use of reference materials in Finland

Food and environmental sectors use RMs the most

Some laboratories were not familiar with the term

"Reference Material / Certified Reference Material"

at all (non-chemical labs)

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The best testing laboratories use regularly

- more than 20 different RMs and
- participate in about 20 intercomparisons or analytical research projects

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Reference Material Supplier

EU BCR	31	44 %
NIST SRM	11	15 %
DHI Water & Env.	5	7 %
NRCC	5	7 %
NBS	3	4 %
Dr. Ehrenstorfer RMs	3	4 %
<u>Others (10 RM companies)</u>	13	18 %
Number of different RMs	71	100 %

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Type of Reference Material

Food	28	39 %
Non-food	38	54 %
<u>Bacteria etc.</u>	5	7 %
Total	71	100 %

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Typical RMs in use (examples)

Food: milk powder and fat, margarine / cod, pork, bovine / muscle, blood, kidney, liver, fat / various leaves, wheat, rice

Non-food: soil, sediment, sludge, phosphate, fertiliser, coal, metals in water, solvents, Cl-benzenes/-phenols, PCB, PAH

Bacteria/microbes: listeria, salmonella, bacteria / microbe strains

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Identified needs for Reference Materials

Fuel oil and gasoline in water and soil (requested by several laboratories)

Soil samples for measurements of pH and conductivity

Chlorophenols in soil

Gas samples for emission measurements (e.g. SO₂, NO, CO, O₂, H₂S in nitrogen)

Sulphur in ash

Waste fuel (chlorine, carbon)

VOC samples

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Identified needs for Reference Materials

Dust

Asbestos

Aldehyde

PAH

Wood ash

Sludge

Compost

Fertiliser: Se and Cd and in general

Food samples: nitrate and nitrite (especially dairy products)

Food samples: preserving agents; benzoic acid, sorbic acid, propionic acid
and for enzyme measurements: sugar and glutamine acid

Feed sample: raw fat, raw fibres, raw proteine, humidity and ash

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Identified needs for Reference Materials

Free fatty acid and peroxide value of oil and fat matrices (milk products)

Base composition in milk

Drug residue in meat, milk, fish egg (RMs for drugs of abuse and their metabolites)

Microbiological reference materials easily soluble in water solutions

Animal diseases (especially Salmonella, Gallinarium and Brucella canis positive control serum)

EHEC-bacteria, also Shigella, Viriot, Yersinia, Aecomonas, Campylobacter