**Task:**

**Application field:** Environment

**Material:** Toy (stove made of plastics without electronics)

**Feed size:** < 5 mm (after pre-grinding in Cutting Mill SM 2000)

**Feed quantity:** 100 g

**Material specification(s):** elastic, electrostatic

**Customer requirement(s):** preparation according to RoHS guidelines

**Subsequent analysis:** MW Micro Wave Digestion → AAS Atomic Absorption-Spectroscopy

**Solution:**

**Selected instrument(s):** Heavy-Duty Cutting Mill SM 2000 (pre-grinding) Ultra Centrifugal Mill ZM 200 (fine grinding)

**Configuration(s):**
- SM 2000: Bottom sieve square holes 6 mm, stainless steel;
- ZM 200: Push-fit rotor, 12 teeth, stainless steel; Ring sieve trapezoid holes 0.5 mm, stainless steel

**Parameter(s):**
- SM 2000: revolution speed 700 rpm
- ZM 200: revolution speed 18000 rpm

**Time:** 30 min. (entire preparation without analytics)

**Achieved result(s):** predominantly < 200 - 300 µm

**Remark(s):**
- First the toys are dismantled, screws of steel are sorted out.
- The plastic parts are sorted by colour and ground separately.
- Before fine grinding, the plastic material is embrittled in liquid nitrogen.

**Recommendation:** For this application the Heavy-Duty Cutting Mill SM 2000 and the Ultra Centrifugal Mill ZM 200 are suitable under the above mentioned conditions.
Pictures of the sample

**Fig. 1:** original toy (plastic stove)

**Fig. 2:** dismantled / sorted by colour and pre-cut by plate-shear

**Fig. 3:** dismantled and sorted by colour

**Fig. 4:** after pre-grinding in SM 2000

**Fig. 5:** after pre-grinding in SM 2000

**Fig. 6:** after pre-grinding in SM 2000

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