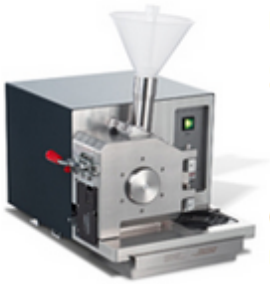
固废垃圾（CSR 1）

行　　业：	Plastics / textiles, Environment
进料尺寸：	< 6cm (<4mm CSR; CSR1&2 < 6cm)
最终精度：	< 0,5mm
样 品 量：	1kg
研磨建议：	Sample “CSR <4mm” and CSR 2 (747) can be ground with our Universal Cutting Mill PULVERISETTE 19 in combination with the cyclone separator. Sample CSR1 use to contain a high percentage of thermoplastic foil which use to start melting immediately. Even with a previous embrittlement, a grinding to <2mm would be tuff for such high amounts.



UNIVERSAL CUTTING MILL PULVERISETTE 19

disk milling rotor with indexable inserts and knives made of hardmetal tungsten carbide with sample exhauster system with cyclone separator

+ sieve cassette 0,75 mm trapezoidal perforation

Material attributes:	**sample "CSR 1"**
Feed quantity:	5 g
Feed Size:	~ 6 cm (thin foil)
Grinding time:	30 s (abortion)
Final fineness:	melted
Comments:	The sample CSR1 use to contain mainly thin foils of thermoplastics. The sample starts melting directly after feeding. Not even the cyclone separator with its high airflow will hinder the melting process.

Sticking piece and small amount of foil have been packed separately.

Probably it might be supportive pre grinding the sample with a sieve cassette of 6mm square perforation (see trial 4).

Complete sample has been lumped to this, easy to removing piece of soft and warm plastic.

UNIVERSAL CUTTING MILL PULVERISETTE 19

disk milling rotor with indexable inserts and knives made of hardmetal tungsten carbide with sample exhauster system with cyclone separator

+ sieve cassette 6 mm square perforation

Material attributes:	**sample "CSR 1"**
Feed quantity:	40 g (complete rest of sample)
Feed Size:	~ 6 cm (thin foil)
Grinding time:	2:30 min
Final fineness:	< 6 mm
Comments:	Especially with the 6mm square perforated sieve cassette in combination with the cyclone separator, sample will remain inside the grinding chamber very short time. Only 36g of output have been found after grinding. The remaining 4g use to stick as melted material on the sieve cassette. Higher amounts need to be chilled previously (eventually in a freezer might be fulfilling; liquid N2 will do surely) for grinding.

Melted sample started sticking to the 6mm sieve cassette.

UNIVERSAL CUTTING MILL PULVERISETTE 19

disk milling rotor with indexable inserts and knives made of hardmetal tungsten carbide with sample exhauster system with cyclone separator

+ sieve cassette 2 mm trapezoidal perforation

Material attributes:	**sample "CSR 1"**
Feed quantity:	10 g
Feed Size:	< 6 mm (see result 4)
Additive:	+ liquid N2
Grinding time:	1 min
Final fineness:	< 2 mm
Comments:	Pre ground sample of trial 4 (<6mm) has been used for this trial. We place the sample into a basin and poured liquid nitrogen over it. After About 30s of chilling in liquid nitrogen, we started grinding the sample. Therefore, we fed the sample spoon wise with a bit of liquid nitrogen into the feeding funnel. 10g of sample have been ground with 1 minute. After grinding, sieve cassette and rotor are almost free of residue, higher amounts can be ground. About 90 minutes are plausible for grinding the desired amount of 1kg.

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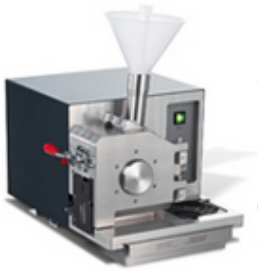
UNIVERSAL CUTTING MILL PULVERISETTE 19



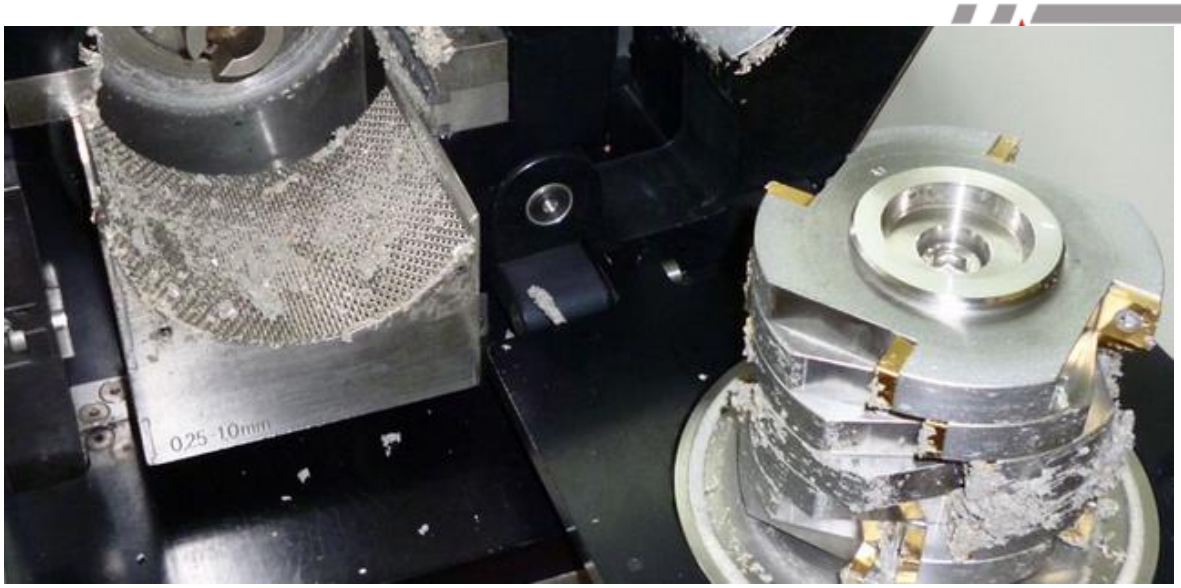
disk milling rotor with indexable inserts and knives made of hardmetal tungsten carbide with sample exhauster system with cyclone separator

+ sieve cassette 0,75 mm trapezoidal perforation

Material attributes:	**sample "CSR 1"**
Feed quantity:	17 g
Feed Size:	< 6 mm (see result 4)
Additive:	+ liquid N2
Grinding time:	1:30 min
Final fineness:	melted
Comments:	17g of sample has been used to testify the grinding ability with 0,75mm sieve cassette after embrittlement with liquid nitrogen.

The sample has been treated analogous result 5. After 90s, all sample have been fed. Afterwards, a higher amount of sample remained inside the grinding chamber, became mildly worm (~ 30-40 °C) and soft. Sample is polluting rotor, knives and sieve cassette. A grinding of higher amounts is not possible.

Better grinding results are expected when such fast melting samples like "CSR 1" might be mixed with fibrous and less temperature sensitive materials like cotton or paper which will bind melted materials.



Sample is covering rotor, knives and sieve cassette. Cleaning can be done with a wired brush; afterwards, we ground a small quantity of wood for removing last sticking sample.