### Task:

<table>
<thead>
<tr>
<th>Application field:</th>
<th>Mineralogy / Geology / Mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material:</td>
<td>Minerals, 4 samples</td>
</tr>
<tr>
<td>Feed size:</td>
<td>4-15 mm</td>
</tr>
<tr>
<td>Feed quantity:</td>
<td>130 - 160 g (see remarks)</td>
</tr>
<tr>
<td>Material specification(s):</td>
<td>dry, hard-brittle, abrasive</td>
</tr>
<tr>
<td>Customer requirements(s):</td>
<td>50 µm</td>
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<tr>
<td>Subsequent analysis:</td>
<td>XRF - X-ray Fluorescence Analysis</td>
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</tbody>
</table>

### Solution

**Selected Instrument(s):**
- Jaw Crusher BB 50
- Planetary Ball Mill PM 100

**Configuration(s) Item nos.:**
- Pre-crushing:
  - 1 x Jaw Crusher BB 50, 200-240 V, 50/60 Hz, breaking jaws of tungsten carbide, wearing plates of tungsten carbide
- Fine grinding:
  - 1 x PM 100, 230 V, 50/60 Hz
  - 1 x Grinding jar "comfort", tungsten carbide, 250 ml
  - 15 x Grinding ball, tungsten carbide, 20 mm ø

Please note: Other electrical versions of the instrument(s) are available with different item numbers.

**Parameter(s):**
- BB 50: Revolution speed 950 rpm, gap width 2 mm
- PM 100: Revolution speed 380 rpm

**Time:**
- BB 50: about 1 min for each sample
- PM 100: 10 min for each sample

**Achieved result(s):**
- Sample Korund 5 mm: 93% < 50 µm
- Sample SiC: 96% < 50 µm
- Sample Tabular Alumina: 98% < 50 µm
- Sample Bauxit 8-15 mm: 95% < 50 µm

The application report is based solely on the processing of the available sample material in the indicated amount. No legal claims shall be derived from this test report. Subject to technical modification and errors.

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Remark(s):
Pre-crushing
The samples Bauxit and Tabular Alumina have to be pre-crushed to < 5 mm using the Jaw Crusher BB 50. The sample is fed slowly but continuously to the working BB 50 (about 200 - 250 g/min).

Fine grinding:
For each sample a grinding jar 250 ml is filled with 15 grinding balls Ø 20 mm and 160 g pre-crushed sample (Bauxit or Tabular Alumina) or 130 g Korund or SiC. 10 drops of isopropanol may be added to avoid sample agglomeration during grinding. The sample then is ground in the Planetary Ball Mill PM 100 for 10 min at 380 rpm.

Recommendation: The Jaw Crusher BB 50 and the Planetary Ball Mill PM 100 are suitable to grind the sample material under the above mentioned conditions.
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Sample Bauxit 8-15 mm after fine grinding in PM 100