

# GRINDING QUESTIONNAIRE

(for new grinding plants or revamping of existing grinding plants)

|   |  |   |  |
|---|--|---|--|
| Name:   |  | Title:  |  |
| Company:  |  | Dept.:  |  |
| Telephone:  |  | e-mail:   |  |
| Address:  |  | Altitude:   |  |
| Priority: <input type="checkbox"/> increasing of production   |  | <input type="checkbox"/> saving of energy consumption   |  |
| If other, please:   |  | <input type="checkbox"/> Other <input type="checkbox"/> |  |
| Product to be grind:  |  |   |  |
| Production:   |  | kg / hr. and hrs / day                                  |  |
| Feed material - parameter:  |  | Moisture [%]  |  |
|   |  | Ø max   |  |
|   |  | Temperature [°C]  |  |
|   |  | Ø max   |  |
|   |  | Particle size   |  |
|   |  | max D80%  |  |
|   |  | Share [%]   |  |
|   |  | <3 mm >50 mm  |  |
| Feed material specific parameters   |  | BOND- Work Index [kWh/short]                            |  |
|   |  | compressive strength kg/cm                              |  |
|   |  | bulk density t/m  |  |
|   |  | SiO2 %  |  |
| PLEASE ADD A TYPICAL SIEVE CURVE OF ALL COMPONENTS  |  |   |  |
| Type of Grinding: <input type="checkbox"/> Open circuit <input type="checkbox"/> dry grinding <input type="checkbox"/> end discharge <input type="checkbox"/> Center discharge <input type="checkbox"/> |  |   |  |
| <input type="checkbox"/> Closed circuit <input type="checkbox"/> wet grinding <input type="checkbox"/> air swept <input type="checkbox"/> incl. Drying chamber <input type="checkbox"/>                 |  |   |  |
| Sense of rotation (view from feedside to discharge side) <input type="checkbox"/> clockwise <input type="checkbox"/> counterclockwise <input type="checkbox"/>  |  |   |  |
| Mill speed:  rpm  |  |   |  |
| Characteristic of feed product: (Pasty, lumpy, granular, etc.)  |  |   |  |
| Please define previous process: !   |  |   |  |
| Behaviour of feed product: (Sticky, smears, breaks up readily)  |  |   |  |
| Temp. limit of discharge product: °C  |  | Temp. limit of discharge product: °C                    |  |
| Reason for temperature limit:   |  |   |  |
| Inner diameter of mill shell: mm  |  | Electric Power: V +/- [%]                               |  |
| Length of mill shell: mm  |  | Frequency Hz +/- [%]                                    |  |
| Inner diameter feed head lining: mm   |  | Current A   |  |
| EGL 1st grinding chamber mm   |  | Installed Power: kW                                     |  |
| EGL 2nd grinding chamber mm   |  | Absorbed Power: kW/h                                    |  |
|   |  | cos phi   |  |

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EGL 3rd grinding chamber  mm  Filling degree  %

Control of mill feeding:  manual  automatic  Type:

Manufacturer:

Control with:  absorbed power of bucket elevator  
 weighing of separator coarses  
 sonic measurement of mill noise  
 absorbed power of mill drive

**Grinding media specification:**

| Chamber I  |        |     | Chamber II |        |     | Chamber III |        |     | Ball quality<br>casted <input type="checkbox"/><br>forged <input type="checkbox"/><br>Cr [%]<br>C [%]<br>Mn [%] |
|------------|--------|-----|------------|--------|-----|-------------|--------|-----|---|
| Dia.       | Weight |     | Dia.       | Weight |     | Dia.        | Weight |     |   |
|            |        |     |            |        |     |             |        |     | please add a actual<br>longitudinal sieve data<br>report.   |
|            |        |     |            |        |     |             |        |     |   |
|            |        |     |            |        |     |             |        |     |   |
|            |        |     |            |        |     |             |        |     |   |
|            |        |     |            |        |     |             |        |     |   |
| Total      |        |     | Total      |        |     | Total       |        |     |   |
| Filling:   |        | t   | Filling:   |        | t   | Filling:    |        | t   |   |
| wear rate: |        | %   | wear rate: |        | %   | wear rate:  |        | %   |   |
|            |        | g/t |            |        | g/t |             |        | g/t |   |

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|  |  |   |                          |
|--|--|---|--------------------------|
| <b>Mill lining:</b>  | Chamber I  | Chamber II                                  | Chamber III              |
| Type of lining:  |  |   |                          |
| Design:  |  |   |                          |
| Material:  |  |   |                          |
| Thickness: [mm]  |  |   |                          |
| Operation: [hrs]   |  |   |                          |
| Condition:   |  |   |                          |
| <b>Diaphragm:</b>  | Chamber I  | Chamber II                                  | Chamber III              |
| Type of lining:  |  |   |                          |
| Width of slot: [mm]  |  |   |                          |
| Open surface: [m <sup>2</sup> ]  |  |   |                          |
| Operating hours: [hrs]   |  |   |                          |
| Material:  |  |   |                          |
| <b>PLEASE ADD DRAWING OF DIAPHRAGM TO THIS DATA SHEET !</b>            |  |   |                          |
| <b>Data of Mill filter:</b>  |  |   | Underpressure            |
| Manufacturer:  |  |   | mm WS                    |
| Type:  |  |   | mm WS                    |
| Dedusting air quantity:  | Bm /h at °C  | Mill feed side:                             | mm WS                    |
|  | Nm /h  | Mill discharge side:                        | mm WS                    |
|  |  | bevor Filter:                               | mm WS                    |
|  |  | after Filter:                               | mm WS                    |
| <b>Pre-Collector</b>   | <input type="checkbox"/> YES   | <input type="checkbox"/> NO                 | <input type="checkbox"/> |
| <b>Filter product:</b>   | <input type="checkbox"/> add to product  | <input type="checkbox"/> to bucket elevator | <input type="checkbox"/> |
| <b>Seperator:</b>  | <input checked="" type="checkbox"/> Conventional mechanical air separator<br><input checked="" type="checkbox"/> Cyclon air separator<br><input checked="" type="checkbox"/> Caged- rotor classifier<br><input checked="" type="checkbox"/> Channel-wheel separator<br><input checked="" type="checkbox"/> Other |   |                          |
| Manufacturer:  |  |   |                          |
| Type:  |  |   |                          |
| Dimensions:  |  |   |                          |
| Year of manufacturing:   |  |   |                          |
| Collecting of fines:   |  |   |                          |
| actual production  | t/h with a fineness of   |   | Blaine                   |
| maximum production   | t/h with a fineness of   |   | Blaine                   |
| actual separator feed quantity   | t/h with a fineness of   |   | Blaine                   |
| maximum separator feed quantity  | t/h with a fineness of   |   | Blaine                   |
| Specific load of product (kg product / m <sup>2</sup> separation air): |  |   | kg/m <sup>2</sup>        |
| Installed power:   | kW   | Absorbed power:                             | kW                       |
| Inst. Power of fan:  | kW   | Abs. power of fan:                          | kW                       |
| <b>Fineness of product:</b>  | Type of product:   | <b>Power supply for motors:</b>             |                          |

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|   |                              |                |                 |   |                             |   |                              |
|---|------------------------------|----------------|-----------------|---|-----------------------------|---|------------------------------|
|   |                              | Cumulative R%  |                 |   |                             |   |                              |
|   | 90µm                         | 63µm           | 45µm            | 32µm  | Blaine [cm <sup>2</sup> /g] | High voltage [V]:<br>Low voltage [V]:<br>Control voltage [V]: |                              |
| Separator feed  |                              |                |                 |   |                             | Frequency [Hz]:<br>max. drive power for low voltage           |                              |
| Separator rejects   |                              |                |                 |   |                             | motors [kW]:  |                              |
| Separator fine material                                     |                              |                |                 |   |                             |   |                              |
| Product   |                              |                |                 |   |                             |   |                              |
| Filter product  |                              |                |                 |   |                             |   |                              |
| Please attach analyses (Trompcurve, separator efficiency)!! |                              |                |                 |   |                             |   |                              |
| <b>Composition of Mill fresh feed:</b>                      |                              |                |                 |   |                             |   |                              |
| <b>Main Sort:</b>   |                              |                |                 |   | <b>Remarks:</b>             |   |                              |
| <b>Components (Gew. %)</b>                                  | <b>Sort II</b>               |                | <b>Sort III</b> |   |                             |   |                              |
| Klinker   | %                            | Klinker        | %               | Klinker                                       | %                           |   |                              |
| Gips  | %                            | Gips           | %               | Gips  | %                           |   |                              |
|   | %                            |                | %               |   | %                           |   |                              |
|   | %                            |                | %               |   | %                           |   |                              |
| Total   | 100 %                        | Total          | 100 %           | Total   | 100 %                       |   |                              |
| <b>Transport units:</b>                                     |                              |                |                 |   |                             |   |                              |
| Buckelelevator  |                              | max. capacity: |                 | t/h   | Inst. power                 | kW  |                              |
|   |                              |                |                 |   | absorbed power              | kW  |                              |
| <b>Finish product transport:</b>                            |                              | max. capacity: |                 | t/h   |                             |   |                              |
| Type  |                              |                |                 |   |                             |   |                              |
| <b>Finish Product:</b>                                      |                              | Type I         | Type II         | Type III                                      |                             |   |                              |
| Percentage of total prod.:                                  | %                            |                |                 |   |                             |   |                              |
| Production:   | t/h                          |                |                 |   |                             |   |                              |
| Product fineness (Blaine):                                  | cm <sup>2</sup> /g           |                |                 |   |                             |   |                              |
| Residue R at 0,09 mm:                                       | %                            |                |                 |   |                             |   |                              |
| Residue R at .....mm:                                       | %                            |                |                 |   |                             |   |                              |
| Circul. Load (Sep.Feed/Sep.Fines):                          | %                            |                |                 |   |                             |   |                              |
| Spec. Enegy consumption mill:                               | kWh/t                        |                |                 |   |                             |   |                              |
| Product temp. Mill outlet:                                  | °C                           |                |                 |   |                             |   |                              |
| Water spray:  | l/h                          |                |                 |   |                             |   |                              |
| Grinding type:  | %                            |                |                 |   |                             |   |                              |
| Spec.consumption:   | %                            |                |                 |   |                             |   |                              |
| <b>AS MENTIONED PLEASE ATTACH AS FOLLOWS:</b>               |                              |                |                 |   |                             |   |                              |
| Flow sheet of grinding plant                                | <input type="checkbox"/> YES |                |                 | Representativ sieve curves of feed components |                             |   | <input type="checkbox"/> YES |
| Design and fastening of diaphragms                          | <input type="checkbox"/> YES |                |                 | Shell drilling and drawings of present lining |                             |   | <input type="checkbox"/> YES |
| Longitudinal sieving along mill axis                        | <input type="checkbox"/> YES |                |                 | Details of feed end and manholes              |                             |   | <input type="checkbox"/> YES |
| Representative sieve curves of feed components              | <input type="checkbox"/> YES |                |                 | Analyses separator products                   |                             |   | <input type="checkbox"/> YES |

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Typical Mill log sheets

YES

Slave analyses of finish product

YES

REMARKS:

Can a sample of wet and desired dry product be furnished for tests?  
Cite specific handling precautions in laboratory:

YES

NO