11 Granit str., Petah Tikva, Qiryat Arie, 49514 Israel
www.laser-distance-spectrometry.com
info@laser-distance-spectrometry.com
Tel : +972(3)541 10 22
Fax : +972(3)541 10 27

LIBS On-line Analyzer
Technical Requirement Questionnaire

I. Main Technological Tasks

Please fill the specified form for **each** technological task. If needed, please add your comments and provide us with **photo and video of the controlled materials on the conveyor belt and installation locations.**

1	**Task description**	
2	Location and projected installation time – enterprise, section, address, person in charge of the project, phone/e-mail	
3	Purpose of on-line information on the composition: - ***sorting/rejection of material or*** - ***dosage of the mixture of components or reagents*** (please specify whether it is before or after the process)	
5	Type/version of automated control system (SCADA) expected? Is the automation control system an existing or projected one? What is its purpose?	
4	Controlled chemical composition parameters and their threshold values for technological decision making (Decision making points)	
6	Optional interested on-line parameters: humidity, grain-size structure, calorific value, thickness of material layer on the conveyor etc.	
7	Which factors determine the efficiency of implementation of the on-line analyzer?	
8	Projected demand of stream chemical composition analyzers	

II. Main Technological Decision Points

#	**Element/ parameter**	**Technological task** sorting/rejection of the material, dosage of the mixture of components / reagents	**Standard Measurement Range [%]**	**Decision Making Point (DP)**	**Composition Control Frequency, min**
1			Min: **%** Avg: **%** Max: %	Lower: **%** Upper: **%**	
2			Min: **%** Avg: **%** Max: %	Lower: **%** Upper: **%**	
3			Min: **%** Avg: **%** Max: %	Lower: **%** Upper: **%**	

Decision Making Point – значение концентрации элемента или расчетного показателя при котором необходимо принятие решения об изменении дозировки компонентов или направления сортировки сырья

III. Main Characteristics of the Materials

Concentration Ranges of the Main Chemical Elements

Chemical Element	Necessity of control in the on-line mode (required, preferred, unnecessary)	The Range of Concentration Change, min-max, typical %	Relative error of laboratory analyses, %	Standards Used in Laboratory Analyses
Fe				
Si				
Ca				
C				
…				

Grain-size Structure of the Material

Sizes, mm		Mass Percentage of the Material, %	Distribution of the chemical composition of the material according to its fractions (if the segregation data is available), %			
min	**max**		**Element 1**	**Element 2**	**Element 3**	**…**

Mineral	Concentration range, %	Relative error, %	Estimation method (stoichiometry, diffraction etc.)

Physical Properties of the Material

	Winter		Summer	
	min	**max**	**min**	**max**
For solid materials:				
Humidity				
Density				
For slurry:				
Ratio between liquid and solid constituents				
Viscosity				
Density				
Abrasiveness				
Other particular characteristics				

IV. Conveyor Characteristics

Characteristics	Conveyor number, tasks		
	1	2	3
Transported material			
Thickness of a material layer on the conveyor, mm			
Conveyor type: belt conveyer, with transfer point			
Conveyor: horizontal/diagonal, slope angle			
Belt material, its particularities (metal or synthetic base, heat resistance, etc.)			
Belt speed, m/s			
Belt width, mm			
Conveyor productivity, ton/hour			
Is there another conveyor simultaneously working in parallel?			

V. (Slurry) Pipeline Characteristics

Characteristics	Conveyor number, tasks		
	1	2	3
Transported material			
Pipeline diameter, mm			
Wall thickness, material, its finishing			
Horizontal/diagonal, slope angle			
Pressure, bar/ PSI			
Analyzer must be installed before/after pump/tank			
Productivity, ton/hour			
Is there another conveyor simultaneously working in parallel?			

VI. Ambient Characteristics

Characteristics	Conveyor number, tasks		
	1	2	3
Ambient temperature, ^{o}C: Typical, Min/Max			
Ambient humidity, % : Typical, Min/Max			
Installation location size limits, H/W/D, mm (please see the additional sheet of information)			
Ambient explosion hazard, explosion hazard of the material			
Dust content and impurities content at the installation location (within 50-100 cm from the conveyor or the pipeline), mg/m3			
Range of oscillations of voltage and frequency of the electric power supply (380V, 3 phases), high-frequency voltage changes			
Other safety requirements			
Direct sunbeam / rain			
Comments			

Kindly sign & stamp here and return to info@laser-distance-spectrometry.com :

Customer: Name_____ Signature_____ Date_____