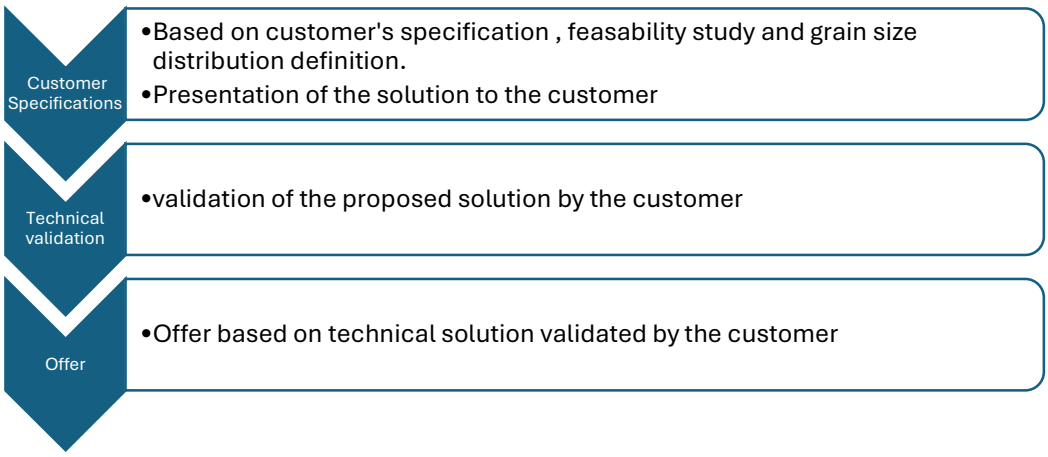
The essential of Sand "on Demand"

The scarcity of quarries and the need to rationalize exploitation plans sometimes makes it difficult to find sand with a desired grain size curve.

SNL develops sands by screening and assembly to meet your specific need for a granulometric curve.

1) **Process:**



2) **Specifications (see annex A)**

The feasibility of a demand sand will require specifying a certain amount of information:

- ✓ **The use of sand**: by specifying the use of sand, we can estimate the level of precision necessary and possibly offer you an alternative.
- ✓ **The desired quantity**
- ✓ **The desired packaging**: when the size range is wide, the risk of segregation is high and we recommend using a 'ready to use' packaging
- ✓ **The curve or particle size distribution**. **At least define the D10-D50 and D90.**
- ✓ **The acceptable tolerance**: in general, the tolerance is 5 to 10% on a given mesh. A mesh without minimum or maximum tolerance will require a break at a previous mesh in order to guarantee the 0% or 100% passing at a given mesh.
- ✓ **The intermediate meshes of the curve**: we will favor a standard mesh (between 63µ and 8mm see annex B) because any non-standard mesh will require purchasing a sieving grid.
- ✓ **A reference standard of the sand if existing**
- ✓ **The other physical characteristics of** sand (hardness, roughness, absorption rate, phosphorescent, ...)
- ✓ **The control method**: in the next chapter, we explain how different control methods can give different results.

3) Measurement of the particle size curve

There are three methods of measuring the particle size curve:

- ✓ **The sieving method**: it is the preferred method by the SNL using certified sieves. It should be noted that a discrepancy is always possible between the measurement of the SNL and that of the client insofar as each sieve has its own tolerance range and the vibration method may differ.
- ✓ **The laser granulometer**: this method cannot be reconciled with the sieve measurement because the laser granulometer assumes that all the grains are perfect spheres, which is of course not the case for a natural siliceous sand.
- ✓ **Imaging:** this method makes it possible to establish with a certain precision the granulometric curve as well as certain characteristics (sphericity, roughness, angularity). This method is partly reconcilable with a sieving measurement. The SNL does not have this equipment and will have to subcontract this type of control.

4) The criteria impacting the price of a demand sand

The following points are likely to influence the price of sand due to the equipment and the necessary manufacturing time:

- Wide or tight curve:
  - A narrow curve is likely to require one or more cuts.
  - A wide curve is likely to require assembly
- Low or standard tolerance (0-10%)
- Standard or non-standard mesh
- Conditioning

5) Extent of the granulometric curve

The Société Nouvelle du Littoral produces sands between 63µ and 8 mm

Beyond 8mm, we call upon a partner capable of producing grain size curves up to 20mm.

6) Example of on-demand sands made

- Sand to calibrate a granulometry video control on a granular product
- Sand according to different beach granulometries for sunscreen tests
- Reconstitution of river sediments for filtration tests
- Reconstitution of river sediments for basin flow trials
- Sand for swells tests in the basin
- Phosphorescent sand for testing in river water and hydraulic basin
- Sand for wear tests on textile, meter, optical glass, ...
- Establishment of a granulometric curve of different components of a quarry and reconstitution of each of them with silica sand in order to prepare for a change in operating plan.
- Establishment of different sands on specifications for fuse efficiency testing.
- Sand for engineering project
- Sand for flow simulation study in fluid mechanics
- .....

Annex A: Specifications

Company name	
Use of sand	
Your need/ description of the desired sand Standard if existing	
D10	
D50	
D90	
Desired granulometric curve and its upper and lower curves if available Specify if % are defined as cumulative retained or passing	
Quantity	
Conditioning	
Other physical characteristics	

Annex B: list of meshes according to the different international standards

Opening	EN / ISO	DIN	ASTM
6.7 mm	6.70 mm	6.70 mm	0.265 in
6.3 mm	6.30 mm	6.30 mm	1/4 in
5.6 mm	5.60 mm	5.60 mm	No. 3 1⁄2
5.0 mm	5.00 mm	5.00 mm	—
4.75 mm	4.75 mm	4.75 mm	No. 4
4.50 mm	4.50 mm	4.50 mm	—
4.00 mm	4.00 mm	4.00 mm	No. 5
3.55 mm	3.55 mm	3.55 mm	—
3.35 mm	3.35 mm	3.35 mm	No. 6
3.15 mm	3.15 mm	3.15 mm	—
2.80 mm	2.80 mm	2.80 mm	No. 7
2.50 mm	2.50 mm	2.50 mm	—
2.36 mm	2.36 mm	2.36 mm	No. 8
2.24 mm	2.24 mm	2.24 mm	—
2.00 mm	2.00 mm	2.00 mm	No. 10
1.80 mm	1.80 mm	1.80 mm	—
1.70 mm	1.70 mm	1.70 mm	No. 12
1.60 mm	1.60 mm	1.60 mm	—
1.40 mm	1.40 mm	1.40 mm	No. 14
1.25 mm	1.25 mm	1.25 mm	—
1.18 mm	1.18 mm	1.18 mm	No. 16
1.12 mm	1.12 mm	1.12 mm	—
1.00 mm	1.00 mm	1.00 mm	No. 18
900 µm	0.900 mm	0.900 mm	—
850 µm	0.850 mm	0.850 mm	No. 20
800 µm	0.800 mm	0.800 mm	—
710 µm	0.710 mm	0.710 mm	No. 25
630 µm	0.630 mm	0.630 mm	—

Opening	EN / ISO	DIN	ASTM
600 µm	0.600 mm	0.600 mm	No. 30
560 µm	0.560 mm	0.560 mm	—
500 µm	0.500 mm	0.500 mm	No. 35
450 µm	0.450 mm	0.450 mm	—
425 µm	0.425 mm	0.425 mm	No. 40
400 µm	0.400 mm	0.400 mm	—
355 µm	0.355 mm	0.355 mm	No. 45
315 µm	0.315 mm	0.315 mm	—
300 µm	0.300 mm	0.300 mm	No. 50
280 µm	0.280 mm	0.280 mm	—
250 µm	0.250 mm	0.250 mm	No. 60
224 µm	0.224 mm	0.224 mm	—
212 µm	0.212 mm	0.212 mm	No. 70
200 µm	0.200 mm	0.200 mm	—
180 µm	0.180 mm	0.180 mm	No. 80
160 µm	0.160 mm	0.160 mm	—
150 µm	0.150 mm	0.150 mm	No. 100
140 µm	0.140 mm	0.140 mm	—
125 µm	0.125 mm	0.125 mm	No. 120
112 µm	0.112 mm	0.112 mm	—
106 µm	0.106 mm	0.106 mm	No. 140
100 µm	0.100 mm	0.100 mm	—
90 µm	0.090 mm	0.090 mm	No. 170
80 µm	0.080 mm	0.080 mm	—
75 µm	0.075 mm	0.075 mm	No. 200
71 µm	0.071 mm	0.071 mm	—
63 µm	0.063 mm	0.063 mm	No. 230

7) Lexicon

- **Passing**: define the % of sand passing through a given mesh
- **Reject**: define the % of sand retained by a given mesh
- **D10**: define the mesh for which 10% of the sand is passing
- **D50**: define the mesh for which 50% of the sand is passing
- **D90**: define the mesh for which 90% of the sand is passing
- **Granulometric curve**: curve mentioning the cumulative % passing or % retained for a set of meshes between 100% and 0% cumulative passing or retained.
- **Upper and lower curves**: curves framing the desired grain size curve and defining the minimum and maximum values for each mesh.
- **Sand centered at a given mesh**: the mesh corresponds to the D50
- **Narrow curve**: sand between two closely spaced meshes
- **Wide curve**: sand between two distant meshes