



SABLACIER STEEL GRIT

The biggest steel shot and grit manufacturer of South America, **IKK do Brasil**, performed exhaustive tests to evaluate the performance of different types of metallic and non metallic abrasives; used in compressed air equipment.

The tests were performed by technical personnel with a lot of experience in industrial applications, using strict coherence parameters and objectivity in the process used.

Summarising is a description of how the trial was performed.

- During a period of 14 days, 45 different tests were performed.
- The tests were performed with equipment of projection of abrasive by compressed air, shotblasting plates of 1m².
- Venturi Long Projection nozzles of 9.5 mm and 12.7mm were used for all the abrasives, submitted to different air pressures.
- Only one qualified operator performed the manual tests, until the achievement of a cleaning level Sa2 ½ (Near -white metal) in all the trials.
- Similar tests were repeated with an automatic equipment, to make sure that the human interference did not have any impact on the results. A shotblast nozzle was fixed to a robot, putting the steel sheet to be cleaned on a spinning table. The cleaning level achieved with the automatic equipment was level Sa3 (White Metal).
- The performance of steel grit abrasive was compared with non metallic abrasives (aluminium oxide, slag and sand). To obtain a more real condition, operative mixtures of steel grit and aluminium oxide from clients were used. The samples were cleaned through a conventional abrasive purifier, to make sure that the operative mixture did not have any contaminated particles. The samples of sand and copper slag were new, that is to say that the sand and the slag are used in only one cycle.
- During the test the quantity of abrasive used, the time required for cleaning, the impact speed and the air flow were measured.
- High caution was taken in everything related to the care of the Environment, item essential to guaranty consistent results and objectives.





RESULTS

The results yielded interesting data, considering the characteristics of the metallic and non metallic abrasives, in terms of cleaning efficiency.

- The steel grit SABLACIER, when used in a system equipped with recovery and purification of the abrasive, is the cheaper option with regard to the other metallic and non metallic abrasives. The initial cost of the steel grit is compensated because of its longer lifetime, number of cycles and most important of all, better productivity. (see chart)
- The process with steel grit almost produces no dust with regard to the non metallic abrasives, having the following advantages:
 - Using steel grit the operator has a better visibility, working in a more efficient and more comfortable way.
 - The residue volume is lower, that means a lower cost.
 - Working in closed shotblasting room, the level of investment in equipment is lower. The use of steel grit requires a dust collector 3 to 5 times smaller than the one used for non metal abrasives.
- The wear of the equipment (nozzles and parts submitted to abrasion) is lower when steel grit is used.
- The steel grit is the best abrasive to be used in terms of environmental care and operator's health issues.
- It has been proved that the efficiency or shotblasting speed is not the principal technical argument for steel grit. The tests determined that under special working conditions, some non metallic abrasives have a similar cleaning rate to metallic abrasives.
- Despite having performed the tests with strict control parameters and with the utmost care, the following was observed:
 - The shotblasting by compressed air was proved to be an unstable and delicate process.
 - Small variations in the adjustment of the equipment can change the results obtained considerably. Being the technical backup that the manufacturers of the equipment provide to the users; very important.





COMPARATIVE CHART OF THE ABRASIVES PERFORMANCE

Kind of Abrasive	Working Pressure	Production (1)	Abrasive consumption (2)		Nozzle Life	Dust Generated
	bar		m ² /hr	Kgr/hr.	Kgr/m ²	
Steel Grit "Sablacier"	6	20	5	0.25	700	Very low
Steel Grit "G40E"	6	15	5	0.33	1200	
Steel Grit "G40D"	6	11	3.5	0.32	2000	
Cast Iron	6	10	10	1.00		Low
Aluminium Silicate	6	18	30	1.67	160	High
Aluminium Oxide	4	10	18	1.80	160	
Copper slag (1x)	7 to 8	12	500	41.67		Very high
Copper slag (3x)	6	7	225	32.14		
Sand	6	10	400	40.00	300	
Garnet	6	15	250	16.67	300	
Basalt	6	12	250	20.83		
Hematite	6	12	200	16.67		

- The production data (1) of the different abrasives can change according to the ability and motivation of the operator, process control, type and size of the pieces to be cleaned, etc.
- The data of the abrasive consumption (2) are averages of the practical experiences performed at work.
- **The chart shows that the STEEL GRIT SABLACIER provides a higher level of cleaning or production (20m²/hour) with less consumption of abrasive (250 grs/m²).**

