

MicroBlast Grit blasting process on T-Specimen.

NicroBlast® Grit (nickel-based)

Enhances Base Metal Surfaces to Improve Brazing Filler Metal Flow and Wettability Through Tight Joints

Description:

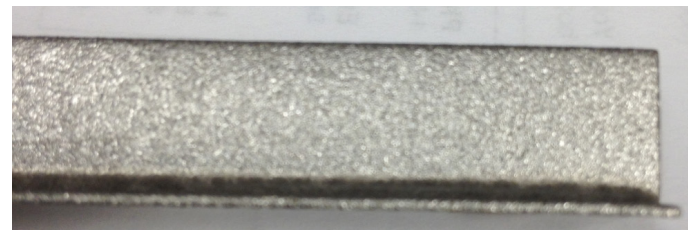
NicroBlast Grit is a specially formulated nickel-chromium-iron blasting grit that enhances brazing action by creating more suitable surfaces on the base metals being joined. The grit blasting operation provides the base metal with a texture and compressive surface stress which improves and promotes multi-directional flow of the Brazing Filler Metal. This is particularly effective with nickel-based filler metals resulting in increased joint fill. The result is increased joint fill.

Since its composition resembles a nickel-chromium-iron Brazing Filler Metal, NicroBlast Grit works on a variety of base metals, including stainless steels, nickel-based and precious metals, and even difficult-to-work superalloys such as titanium.

Any minute traces of NicroBlast Grit left on the part after blasting will blend with the Brazing Filler Metal. The grit does not rust and is non-contaminating, thus it will not impair joint strength as will other blasting media, such as cast iron grit or non-metallic grit (e.g., glass beads, aluminium oxide, zirconia, silica, etc.)

Special note for parts with internal passages: Any excess grit left after blasting should be removed from internal passages, where it could sinter or melt during the braze cycle and potentially block passages.

It is not necessary to replace the NicroBlast Grit after every blasting operation (unless recommended), as long as the dust that is created by the continual wearing away of the grit particles is removed. However, grit should be added to the cabinet as the supply is depleted.



T-Specimen after blasting with NicroBlast Grit.

Nominal Composition - % by Weight:

B	Cr	Ni	Si	Fe	C
3.0	15.0	Bal	4.5	4.0	0.7

Forms Available:

Supplied as 250 - 90 micron (60 mesh - 170 mesh),
106 - 38 microns (140 mesh - 400 mesh)
Specific gravity 7.89/cc
Apparent (bulk) gravity 4.3 g/cc

Comparisons To Other Blasting

Media:

Stainless Steel Grit

NicroBlast Grit is harder than stainless steel grit, and its high nickel and chromium composition is closer to the nickel-based Brazing Filler Metals most commonly used in brazing corrosion-resistant base metals.

Cast Iron or Steel Grit

Cast iron or steel traces left after blasting will rust and contaminate base metal surfaces. Angular grit is too aggressive and will result in excess metal removal. Spherical grit geometry will produce the desired compressive stress in the base metal surface.

Non-Metallic Compounds

(sand, glass beads, aluminium oxide, zirconia, silica)

Non-metallic media leave behind embedded particles of silicon, aluminium or zirconium oxides. These embedded particles will adversely affect braze joint strength by preventing the Brazing Filler Metal from properly wetting and flowing on base metal surfaces.

Testing Flow Characteristics:

To test the ability of NicroBlast Grit to improve Brazing Filler Metal flow, simply blast one half of a test piece, leaving the other half unblasted. Apply a small amount of Brazing Filler Metal across both halves. Run the test piece through a regular furnace brazing cycle using the appropriate protective atmosphere. The difference in flow between the blasted and non-blasted halves will be readily apparent.

Tips For Use:

Pre-Blast Preparation – Degreasing before blasting is strongly recommended. Ensure that all oil, grease, oxides and other contaminants are completely removed from the part prior to blasting.

Air Pressure – 100 psi is recommended. When blasting thin sheet metal parts, it may be necessary to lower the air pressure to prevent part distortion.

Blaster Type – A Pressure-type blaster which provides uniform blasting and higher pressures is preferred over a suction-type blaster.

Air Sweep – Maintain adequate air sweep within the blasting cabinet to ensure that all fine particles are continuously removed from the cabinet during the

blasting operation.

Brazing Temperature – NicroBlast Grit is most effective between 980 - 1065°C (1800 - 1950°F), and becomes less effective as the brazing temperature increases. Also, the higher the temperature, the higher the risk that in base metals containing aluminium and titanium, these elements will diffuse to the surface much faster and form an oxide layer which may inhibit Brazing Filler Metal wettability. Best results are obtained when the brazing process is performed immediately after the blasting operation.

Avoiding Contamination Of Grit:

To maintain the superior qualities of NicroBlast Grit, avoid contaminating it with substances detrimental to good brazing. NicroBlast Grit is a surface enhancer, and thus should not be used to clean oxidized or dirty metal surfaces (contaminated with oil, grease, oxides, scale, dirt, carbonaceous deposits, masking compounds such as stop-off, or flux). Using NicroBlast Grit as a cleaning medium will progressively contaminate the grit and adversely affect its surface enhancement qualities.

Note: If NicroBlast Grit is used on base metals containing aluminium or magnesium, the grit should be discarded, the blasting cabinet cleaned and new NicroBlast Grit added to the cabinet before blasting other parts.

Safety:

When handling metal powder alloys, avoid inhalation or contact with the skin or eyes. Conduct application operations in a properly ventilated area. For more information, consult, OSHA Safety and Health Standards available from U. S. Government Printing Office, Superintendent of Documents, P. O. Box 371054, Pittsburgh, PA 15250, and the manufacturer's Material Safety Data Sheet (MSDS). Read and understand the manufacturer's material safety data sheet before use.

Storage Requirements:

Keep powders in a closed container and protect against moisture pick-up. The containers should be tumbled before using the powder. If moisture is adsorbed from the atmosphere, it can be removed and flowability can be restored by drying the powder, with the seal removed and lid loosened, at 65.56 - 93.33°C (150 - 200°F) for two hours prior to use.

The information provided herein is given as a guideline to follow. It is the responsibility of the end user to establish the process information most suitable for their specific application(s). Wall Colmonoy Limited (UK) assumes no responsibility for failure due to misuse or improper application of this product, or for any incidental damages arising out of the use of this material.

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