

SPECIFICATION FOR MINERAL ABRASIVES (ISO 11126)

1491

a two page issue

June 2007
revision of October 1999**SCOPE**

This specification covers mineral abrasives such as corundum, aluminium silicate slag, or any slag mixtures which are suitable for removing rust, scale, old paint or shop primer from steel by blast cleaning and giving a satisfactory anchor pattern.

This specification covers only those abrasives commonly known as utility grades.

REQUIREMENTS

Material – The abrasive may be any material meeting the requirements of this specification. It shall be composed of clean, sound, hard particles free from foreign substances such as dirt, oil, grease, toxic substances, organic matter and water soluble salts.

The abrasive supplier shall certify that any product to be delivered conforms to all requirements stated herein.

pH – 100 gram of a representative abrasive sample is crushed using a mortar and pestle. Approximately 50 grams of the crushed sample is added to 200 ml de-ionized water. The pH of this slurry is then determined through the use of an electronic pH meter with an accuracy of ± 0.01 pH unit.

A slurry mixture prepared in this way shall not have a pH below 6.20.

Water Soluble Salts (ISO 11127-6 1993) – The abrasive is mixed with de-ionized water, conductivity max. $1 \mu\text{S}/\text{cm}$, in the proportion 1:1, e.g. 100 g abrasive to 100 cm^3 water. The mixture is shaken for 5 minutes, allowed to settle for at least 1 hour and then shaken again for 5 minutes. Some of the water is decanted, the temperature is recorded and the conductivity measured by a conductivity gauge.

If the conductivity gauge does not have any temperature compensation adjustment, the conductivity should be converted to 20°C or measurement should be carried out at this temperature.

If the conductivity exceeds $250 \mu\text{S}/\text{cm}$ the abrasive is rejected.

If the abrasive is to be used for High Pressure Wet Abrasive Blastcleaning the total amount of water soluble matter should be below 0,5% by weight.

Moisture Content – Approximately 200 grams of abrasive shall be weighed to the nearest 0.1 g in a tared weighing dish and dried at 105 to 110°C for 3 hours or more until successive weighings after additional 1 hour heating periods show a weight change of not more than 0.1%. The percentage of moisture is calculated as follows:

$$\text{percent moisture} = \frac{\text{original weight} - \text{final weight}}{\text{original weight of sample}} \times 100$$

The moisture content for material delivered in bags or in bulk shall not exceed 0.5% by weight.

Oil and Grease – The abrasive shall not be contaminated with oil and grease. 10 cm^3 abrasive is shaken with 10 cm^3 methylene chloride for about 5 minutes. 5 drops of the solvent are applied to a clean glass plate. After complete evaporation of the solvent the glass plate is exposed to ultraviolet light in total darkness.

If there is blue fluorescence the abrasive is rejected.

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Hardness – Examine the abrasive material under a low-power microscope (10 x) and, if grains of different colour or character are present, select a few grains of each. Separately place the grains thus differentiated between two glass microscope slides. While applying pressure, slowly move one slide over the other with a reciprocating motion for 10 seconds. Examine the glass surface and, if scratched, the material shall be considered as having a minimum hardness of 6 on Moh's scale. If any grains that fail to scratch glass are present, in any appreciable quantity, the total batch is rejected.

Grain Shape – The individual abrasive grains shall be angular in shape.

Surface Profile – The abrasive material shall produce a prescribed blasting profile R_z value (varying between 30-100 μm)

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