1. **PURPOSE**

The purpose of this procedure is to describe methods for the sampling and testing of surface preparation abrasives for soluble salt content.

1. **SCOPE**

This procedure is intended predominantly for field use, and is aimed at non-metallic abrasives, particularly garnet. The procedure has not been evaluated for use with metallic abrasives.

1. **REFERENCES**

ISO (International Standards Organisation) Guide to Uncertainty of Measurement

1. **DEFINITIONS**

Nil.

1. **MATERIALS AND EQUIPMENT**
2. Balance, minimum of 200g capacity, readability 0.5g
3. Conductivity meter, minimum of 2 scales, 200μS/cm at 0.1 readability, 2mS/cm at 0.001 readability, with automatic temperature compensation
4. Graintec 300×19mm grain sampling spear or similar
5. Plastic measuring cylinder, nominally 100mL
6. Plastic bottles, 250mL with a screw sealable cap
7. Timer, stopwatch or wristwatch
8. Plastic beaker, tall 100mL
9. Deionised water
10. ROAR cloth or similar
11. **PROCEDURE**
    1. **Sampling**

The abrasive sample must be representative of the batch under test. A sampling spear shall be used to obtain cores of abrasive from a single bag. Abrasive is commonly delivered in 1 tonne bags which can be difficult to sample effectively. The test sample shall either be made up by combining small scoop samples from at least 5 areas within the bulk bag, or by the use of a grain sampling spear.

* 1. **Testing**
     1. Record the project name, sample location and batch number details on Form TP802-1.
     2. Measure the conductivity of a sample of the deionised water and record as the blank to the nearest μS/cm.
     3. Label the sample bottle with a unique batch identifier, then place the plastic sample bottle without cap on the balance and zero.
     4. Weigh 100 ± 1g of abrasive into the plastic bottle, and re-zero the balance.
     5. Measure 100mL of deionised water using the measuring cylinder then transfer to the plastic bottle.
     6. Install the cap and shake the plastic bottle for 60 ± 5 seconds.
     7. Allow to stand undisturbed for 10 minutes ± 15 seconds.
     8. Measure the conductivity of the supernatant liquid, and record, to the nearest μS/ cm.
     9. Calculate the conductivity by subtracting the blank (6.2.2) from the test result.

**7.0 INTERPRETATION OF RESULTS**

The relationship between conductivity measurement and the concentration of anions and cations in solution is largely unknown, but conductivity measurements will provide a measure of the salinity of a solution. A conductivity limit of 125µS/cm has been established based on extensive testing of salt containing abrasives.

**8.0 UNCERTAINTY OF MEASUREMENT**

The uncertainty of measurement has been determined in accordance with the ISO Guide to Uncertainty of Measurement, and 95% confidence limits have been estimated as ± 10% of the result.

1. **DOCUMENTATION**

Complete Form TP802-1.

**Determination of the Salt Content of Abrasive using Conductivity Measurement**

**Form TP802-1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PROJECT DESCRIPTION |  | | | | |
| Project |  | | | | |
| Sample Location |  | | | | |
| Date Sampled |  | | | | |
|  |  |  |  |  |  |
| Manufacturer |  | | | | |
| Batch Number | Blank |  |  |  |  |
| Measured Conductivity μS/cm |  |  |  |  |  |
| Corrected Conductivity μS/cm |  |  |  |  |  |
|  |  |  |  |  |  |
| Manufacturer |  | | | | |
| Batch Number | Blank |  |  |  |  |
| Measured Conductivity μS/cm |  |  |  |  |  |
| Corrected Conductivity μS/cm |  |  |  |  |  |

Tested By: ……………………………………………Title: ………………………