GTS
specialist knowledge in glass

GLASS MELTING

REFRACTORY CORROSION / STABILITY TESTING

Glass Technology Services Ltd. are an independent laboratory providing a comprehensive range of services related to glass manufacture and use. Our services are provided by experienced, multi-disciplinary staff specialising in all aspects of glass technology. Many of our services are UKAS accredited.

The attack of molten glass on refractory materials is of prime importance to both the glassmaker and the refractory manufacturer. Over a period of several years GTS has developed what are regarded as the standard tests for the assessment of refractory corrosion.

CORROSION TESTING:

Two basic tests have been developed for the investigation of refractory attack.

The first is the static corrosion test. This involves the production of a refractory finger by core drilling and diamond machining the refractory to a specific size.
The test piece is suspended in molten glass, either for a specific period or until delineation between samples occurs and then carefully draining and measuring the wear at the flux-line. The test, although comparative in nature, allows assessment of the rate of attack, observation of reaction below the glass surface, the level of colouration of the glass and also the potential for the production of stone in the glass itself.

The second test performed in conjunction with the first is used to assess the level of bubble or seed released into the glass when it is in contact with the refractory material. This is a test that is especially useful for assessment of glass contact materials.
A small refractory boat is cut from the refractory sample, again using diamond machining. This is filled with glass and heated up to melt the glass and allow the two materials to react. The sample is then cooled down and sectioned for examination using optical microscopy.

As well as the standard tests performed routinely for the majority of refractory suppliers we can carry out various tests designed to highlight specific corrosion problems within the clientís technology.

It is this flexibility of testing methods that provides the opportunity to maximise the information gained from any series of tests carried out.

THE BENEFITS:

- Industry recognised standard testing procedure
- Independent confirmation of material performance
- Adding confidence to the choice of refractory materials
- Multidisciplinary approach, working with both the glass maker and the refractory supplier

RELATED SERVICES:

- Chemical Analysis
- SEM and XRF reaction product analysis
- Glass development

If you would like to know more about these, our other services, or any other aspect of glass technology, please contact us or visit our website.

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