

## CHLORINE RESISTANCE

### Evaluation of the oxidative resistance of materials and/or pipe systems to chlorinated water

#### APPROACH

Since 1992 Bodycote has developed and refined the chlorine testing equipment and improved our knowledge of polymer degradation mechanisms to a position where we have established a sophisticated ISO 17025 accredited facility capable of generating reliable and reproducible chlorine resistance data for an extensive range of materials and pipe constructions.

While many pipe materials have proved to be resistant to degradation, under some specific and more aggressive circumstances, the ageing process can be accelerated and become a critical factor in the determining lifetime and durability of the pipe systems. For example, the common use of chlorine for disinfection purposes means it is becoming increasingly important to evaluate the oxidative resistance of piping materials and systems.

#### PRINCIPLE

The testing is conducted under accelerated conditions at elevated temperatures and pressures. The most common and accepted approach is to perform exposure under "worst case" conditions, that is, the most aggressive media that may be encountered in a specific application.

#### STANDARD TEST CONDITIONS

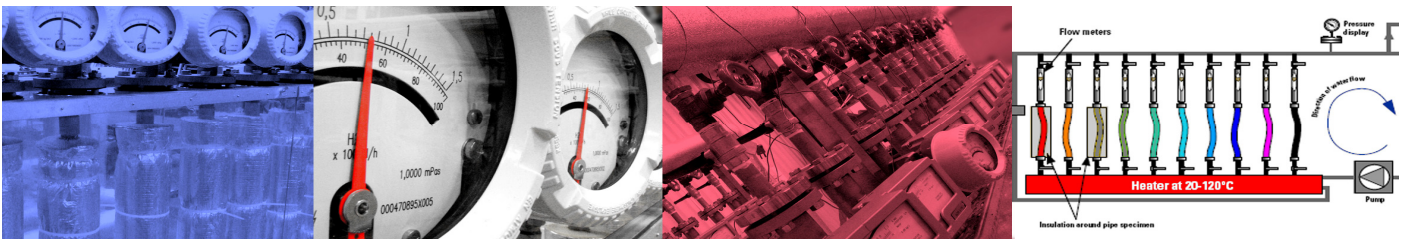
Capacity: >200 pipe samples  
Temperatures: 20-120°C  
Chlorine concentration: 0.5 – 4.3 ppm (mg/dm<sup>3</sup>) (up to 100 ppm to simulate shock chlorination)  
pH: 6.8 is set as standard (others on request)  
Pipe dimension: Up to OD 63 mm (2" US)  
Flow rate: 54 dm<sup>3</sup>/h (others on request)

#### ASTM F 2023 (PEX) AND ASTM F 2263 (PE)

In order to demonstrate the chlorine resistance of a material, Bodycote applies the standard methodology ASTM F 2023 (PEX) and ASTM F 2263 (PE) for testing and evaluation of the long term chlorine performance. This method can also be used for other piping materials in addition to PEX and PE. Mutual recognition of ISO 17025 accredited testing results allows our customers to use the results for certification according to "ANSI NSF" standard specifications.

#### POST EXPOSURE INVESTIGATIONS / ANALYSES

Please contact our experts for further information regarding possible post-exposure analysis of your products. Test programs will be developed in close collaboration with you taking into account the latest research and developments relating to your particular area.



#### CONTACT

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