

Mill Scale Removal Effectiveness of Enviro-D-Rust from Hot-rolled Carbon steel

Introduction

Quicklab was requested to perform dilution testing on Enviro-D-Rust solid concentrate to establish its effectiveness in the removal of mill-scale at a selected range of concentrations in water at ambient conditions

Ten (10) solutions using different concentration of solid concentrate Enviro-D-Rust in distilled water were made up as set out in Table 1 and identically sized hot-rolled carbon steel test specimen were subsequently immersed in the different solutions and mill-scale was removed at ambient temperature for a period of 24 hours.

After 24 hours immersion the test specimens were removed from the test solution, rinsed clean with fresh water subsequently dried before the loss of the mill-scale on the specimen was determined gravimetrically. This is expressed as a percentage mass loss from the test specimen involved. In each case the test specimen surface was also examined to see whether visible rust was present.

Results

In each case after removing mill-scale, rinsing and drying there was no visible evidence of mill-scale present on the test specimen surfaces.

Table 1 The Effectiveness of Mill-scale removal from Hot-rolled carbon steel test specimen using diluted Enviro-D-Rust

Dilution ratio (mass in grams of Enviro-D-Rust to volume in ml of distilled water)	Mass Loss (Mill Scale removed) (g)	% mass loss	Ranking
1:1	1.7223	6.28%	1
1:2	1.5058	5.45%	2
1:3	1.0101	3.67%	8
1:4	1.2872	4.65%	3
1:5	1.1914	4.33%	5
1:6	1.1937	4.34%	4
1:7	1.1307	4.12%	6
1:8	1.1108	4.03%	7
1:9	1.0346	3.75%	10
1:10	1.0090	3.68%	9

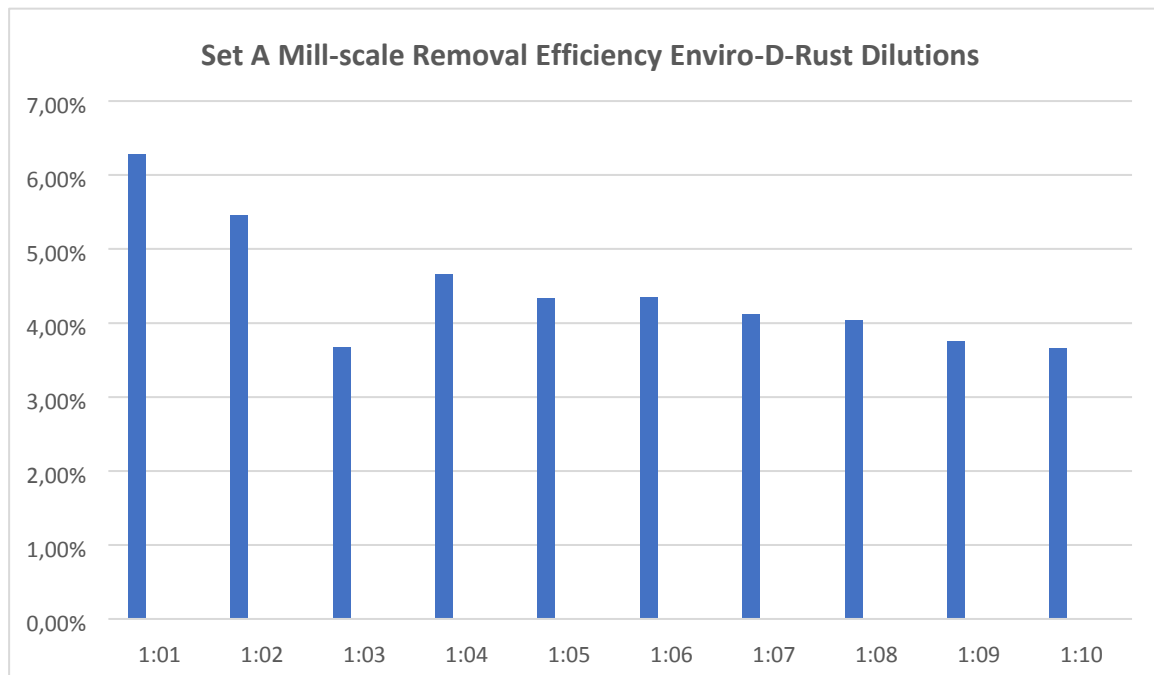



Fig 1 Graphical representation of Mill-scale removal efficiency Hot-rolled carbon steel test specimen

Outcome:

- Enviro-D-Rust removes mill-scale in solutions of up to 1g of Enviro-D-Rust dissolved in 10ml of distilled water.

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