2025

Anti-Slip Applications

Twin component Thixotropic Mastic Coating Systems

TECHNICAL DATA INFORMATION

TOWERINPUT GROUP LTD

Non-metallic aggregate systems, Anti Corrosion and non-slip surfaces to a variety of metallic and non- metallic substrates

Anti-Slip Coating for platforms and walkways:-

Anti slip applications for flooring to reduce the risk of slips and falls for industrial usage.

The system can be installed indoors and outdoors including retail, commercial, industrial, and marine environments.

The anti-slip coating creates an ultrahard layer that will provide excellent friction and water resistance on flooring, making it a great alternative to offer protection for workers in the industrial field and public walkways. The recommended applications for anti-slip coatings can be installed on:

- Ferrous and non-ferrous metals (including Marine)
- Concrete
- Wood surfaces
- Stone – marble, granite, limestone
- Brick

In 2023 there were 11 million people aged over 65 in England. This is projected to increase by 10% in the next five years and by 32% by 2043 (1.1 and 3.5 million people respectively). The population aged 85+, the age group most likely to need health and care services, is also projected to rise rapidly, increasing by 8.2% in the next five years and by 62.7% by 2043 (126,000 and 956,000 people respectively). This level of growth is not new. (*Source Aged UK . Gov)*.

It has been reported that up to 34% of senior citizens encounter incidences of accidental slipping and falling; hence, anti-slip coating.

The system can be installed indoors and outdoors including retail, commercial, industrial, and marine environments.

Wear and Non-Slip testing for defence standard 80-134/2 Systems M.O.D.

Painted system panels to Defence Standard (as above) were subjected to wear testing in accordance with Annex F of the specification (system panels 1 & 2)

In addition, non-slip testing was carried out on the new coating (system panels 3.4.5 & 6) and on the worn coating (samples 1 & 2). The non-slip testing was caried out both on wet and oil conditions according to Annex G of the specification.

The system used is as follows;

- Mastic
- Tower Non-Skid

The results of wear testing (samples 1 & 2) are detailed in table 1. Samples 1-6 in table 2.

Table 1. Results of wear test

Sample	M1 Grams	M2 Grams	M1-M2 Grams	Comments
1	642.29	641.42	0.87	No penetration of the substrate. Small amount of grit / dust and peaks removed. The sample met the standards of defence requirement 80 134 / 2
2	637.40	635.56	1.84	No penetration of the substrate. Small amount of grit / dust and peaks removed. The sample met the standards of defence requirement 80 134/ 2

Table 2. Results of Anti-Skid

Sample	Wet Non slip Average TRL reading	Oil Non slip Average TRL reading	Comments
3,4,5,6.	87.5	51.5	Both Oil and Wet Non-slip exceeded the specification for a new unused coating
1.2. Worn Coating	82.5	41.5	Both Oil and Wet Non-slip exceeded the specification for a worn coating

Testing data for Steel Substates

Testing coated samples with COT sample number 03-06-19/0245 according to ISO 12944-6:2018 C5 High test regime 2

General information

Table 1 : Received samples

COT sample number	Sample	Received
03-06-19/0241	12 x Orange coated metallized steel panels, dimensions 75 x 150 x 5 mm,	29-05-2019

Application data

Substrate - Steel panels.

Surface preparation

Blasted to Sa 2.5 grade cleanliness according to ISO 8501-1.
Surface roughness medium
(G) according to ISO 8503-1.

Coating system build up and specified dry film thickness

Mastic,	140 pm
Tower Non-Skid	160 pm

Total nominal dry film thickness (nDFT)
: 300 pm

Table 2: Products

Products	Type	Name	Batch number
Mastic	Base	45959	049031189
	Curing agent	95093	049031504
Tower Non-Skid	Base	55759	048070203
	Curing agent	97050	049022403

Test specification : ISO 12944-6:2018
Corrosivity category C5
Durability range Very High
Test regime 1

Procedures

Test specification : ISO 12944-6:2018
Corrosivity category C5
Durability range Very High
Test regime • 1

Determination of the dry film thickness using a magnetic induction gauge, ISO 17025

Scope number 1 (Q)

Before starting the tests, the total dry film thickness of the coating system has been measured according to ISO 2808:7C, COT Instruction 30.01.12-2 with a magnetic dry film thickness meter (COT E004) and corrected for surface roughness (C = correction value) according to ISO 19840. On each panel 5 measurements have been carried out.

Adhesion

Before adhesion testing the panels were conditioned for 7 days at 23 ± 2°c and 50 ± 5 % R.H., the test has been performed under the same conditions. Afl individual values have been reported.

Pull-of adhesion according to ISO 4624 Method B

On each panel three trials were performed.

The adhesion of the coating system has been determined by an automatic hydraulic adhesion tester (COT A004) in accordance with ISO 4624 Method B.
The coating surface and the dolly (diameter 20 mm) have been sanded lightly and the epoxy adhesive has been applied. After curing of the adhesive and prior to testing, the coating and the adhesive have been scribed around the dolly down to the bare metal.

Cyclic Ageing test

Three test panels were exposed to the cyclic ageing test according to ISO 12944-6 Annex B for 1680 hours. The fully cured coating system has been scribed horizontal down to the steel substrate, the scribe line being 2 mm wide and 50 mm long.

The panels were exposed to the following cycle according to ISO 20340 Annex A:

72 hours QUV test cabinet with UV-A 340 nm lamps in accordance with ISO 16474-3 Method A, cycle 1 (4 hours UV-light at 60 ± 3 °c / 4 hours condensation at 50 ± 3 °c)
72 hours Salt Spray test according to ISO 9227 5.2 NSS
24 hours Exposure to low temperature (-20 ± 2 °c)

Immediately after exposure the panels were evaluated for visual surface defects according to ISO 4628-2, -3, -4 and -5.

The corrosion at the scribe has been determined within 8 hours after the end of the exposure. The corrosion at the scribe is calculated from the equation: M=(C-W)/2, where M = corrosion creep (mm)
C = average of the nine measurements (mm) W = the original width of the scribe (mm)

Reference adhesion before tests

Table 3: Adhesion before tests Adhesion ISO 4624

		Requirements
ISO 4624	Individual values Break Area	2 2.5 MPa No adhesive failure between steel or metalized steel and the first coat unless 2 5 MPa

RESULTS Dry film thickness

Table 4: Dry film thickness test panels. (ISO 17025 Scope number 1)

Test date: 3-6-2019

Dry film thickness ISO 2808-7C (C = 25 um)	COT sample number 03-0619/0245				
	Panel 121	Panel 122	Panel 123	Panel 124	Panel 125
Readings (n=5)	309 342 337 349 316	311 343 296 317 330	303 314 313 332 302	272 329 299 305 291	267 292 308 282 316
Min. - Max. (pm) Average, SD (um	309 - 349 331 ± 17	296 - 343 319 ± 18	302 - 332 313 ± 12	272 - 329 299 ± 21	267 - 316 293 ± 20
	Panel 126	Panel 127	Panel 128	Panel 129	Panel 130
Readings (n=5)	286 338 313 314 307	362 340 374 342 343	336 341 336 323 283	307 319 319 319 307	306 298 350 314 324
Min. - Max. (pm) Average SD (um)	286 - 338 312 ± 19	340 - 374 352 ± 15	283 - 341 324 ± 24	307 - 319	298 - 350 318 ± 20

Assessment before tests. Table 5: Reference assessment of coating adhesion.

Test date: 1-7-2019

Reference Adhesion ISO 4624 Method B No exposure	COT sample number 03-06-19/0245		
	Panel 124	Panel 125	Panel 128
Adhesion strength (MPa) Break area	11.1 20% C, 80% D	9.2 100% D	10.7 20% C, 80% D
	11.2 20% C, 80% D	10.1 10% C, 90% D	10.6 10% C, 90% D
	11.6 20% C, 80% D	10.1 10% C, 90% D	11.3 10% C, 90% D

Assessment after Cyclic Ageing test

Table 6: Assessment after Cyclic Ageing test

Test date: 28-06-2019 till 6-09-2019 adhesion 13-09-2019

Cyclic Ageing ISO 12944-6 Annex B Exposure 1680 hours		COT sample number 03-06-19/0245		
		Panel 130	Panel 131	Panel 132
ISO 4628-2 Blistering ISO 4628-3 Rusting ISO 4628-4 Cracking ISO 4628-5 Flaking		0(S0) 0(S0) 0(S0)	0(S0) 0(S0) 0(S0)	0(S0) 0(S0) 0(S0)
Corrosion from scribe (mm)		0	0	0
ISO 4624	Adhesion (MPa) Break area (%)	15.5 B/C, C,	12.9 40% C, 60% D	14.0 B/C, C
		14.7 20% B/C, 10% C,	13.9 20% C, 80% D	15.6 30% B/C, C,
		13.1 B/C, D	14.3 30% C, D	16.9 30% B/C, C,

SUMMARIES

Table 7: Summary of the test results COT sample number 03-06-19/0245

Test method	Test duration	Pass / Fail
Reference adhesion (ISO 17025 Scope number 3)	N.A.	Pass
Cyclic Ageing ISO 12944-6 Annex B	1680 hours	Pass

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