



## Report 01.090506.ADH

### Adhesion of different coating systems applied on grinded steel.

#### ISO 4624 – Pull-off Test for Adhesion

This is a test for assessing the adhesion of a single and/ or multi coat system by measuring the minimum tensile stress necessary to detach or to rupture the coating in a direction perpendicular to the substrate.

P.A.T. (Precision Adhesion Tester) is used for the measurements, normally with 3.14 cm<sup>2</sup> dollies.

The results are given in MPa, and the breaks are described in accordance with the standard.

A/B - Adhesive breaks between substrate and 1.coat

B - Cohesive break of 1.st coat

B/C - Adhesive breaks between 1.coat and 2. coat

C - Cohesive break of 1.nd coat

Etc.

#### Systems

The systems tested are given in the table of the results.

#### Test panels and pre-treatment

The test panels were of steel, measuring 100x200x 6 mm, and were delivered readily grinded. The grinding was made by "non sparking" discs, and the surface seemed quite rough.

#### Application

All systems were applied by airless spray in accordance with the TDS of the respective products. The systems were allowed to cure approx. 4 weeks at ambient conditions before testing.

#### Results

System	DFT, $\mu\text{m}$	Adhesion, MPa	Break
Barrier	75	17.0	D (Cohesive Topcoat)
Jotamastic Plus	150	13.4	D
Jotaproof Topcoat	75	<u>15.0</u>	D
		Aver. 15.1 MPa	
Barrier	75	12.0	D(Cohesive Topcoat)
Jotamastic Plus	150	14.2	D
Hardtop PSO	75	<u>16.2</u>	D
		Aver. 14.1 MPa	
Tankguard 412	175	>20	B(Cohesive 1.coat)
Tankguard 412	175	>20	40% B- 60% B/C
		<u>≥20</u>	40% B- 60% B/C

		Aver. >20 MPa	(Partly cohesive/adhesive)
Jotamastic 87 Alum.	150	16.0	B(Cohesive 1.coat)
Jotamastic 87, Grey	150	18.0	B
		<u>14.4</u>	B
		Aver. 16.1 MPa	
Jotacote Universal, Alum.	150	19.0	C(Cohesive 2.coat)
Jotacote Universal, Grey	150	17.2	C
		<u>16.0</u>	C
		Aver. 17.4 MPa	
Barrier	75	13.6	C
Penguard Tiecoat 100	30	13.6	C
		<u>15.2</u>	C
		Aver. 14.1 MPa	

### Conclusion

All systems showed good adhesion to the grinded steel substrates, as no adhesive breaks were observed against the steel.

OA/RP

Jotun Coatings

June 13th, 2006