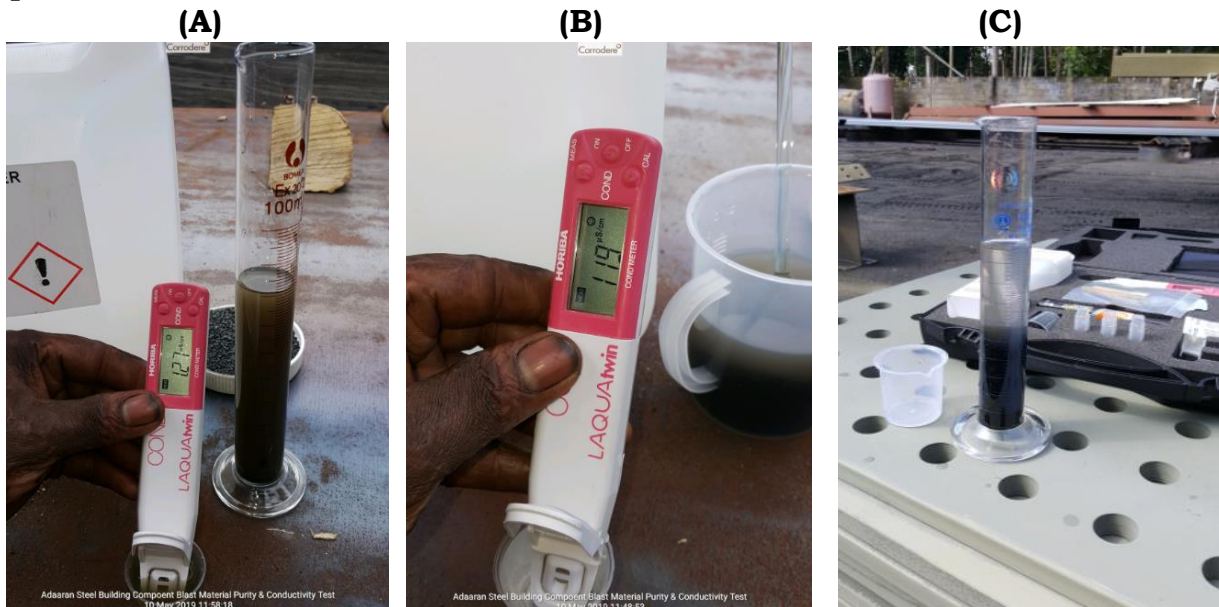


- 1) Environment Monitoring & Steel Temperature associated Test Standards--ISO 8502-4, BS 7079-B4, ASTM D3276, IMO PSPC, SSPC-PA7 and US Navy NSI 009-32 or equivalent-



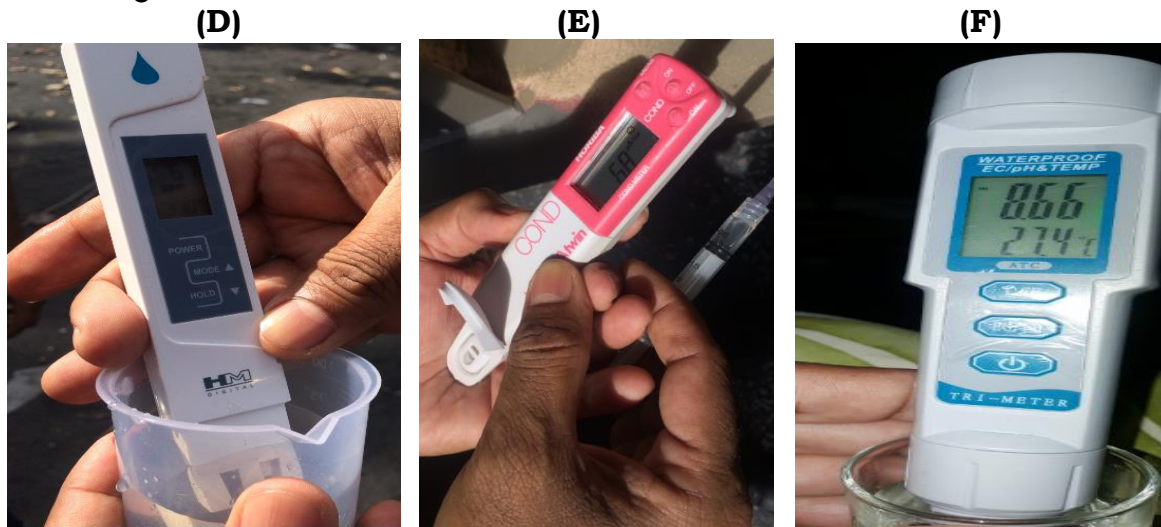
- 2) Dry-Abrasive Purity & Conductivity Test Standards-ISO11127-6 or ASTM D4940 or equivalent-



3) Compressed Air Testing in Compliance to ISO8573-1 & ISO12500-

Most Common & suitable test either by using Clear Absorbent Paper or any Soft paper to for any Oil & Carbon Particles passing through the air-flow. No photos available in my data base to show How it is done and however the test is simple as no any instruments involved.

4) Basic Water Quality Testing (ASTM D1293-18 & ASTM D1125-14) prior to use for surface washing-



5) Surface Standard identification Immediately upon Blasting under ISO8501-1:2007(E) A-D Sa-2.5 or Equivalent-

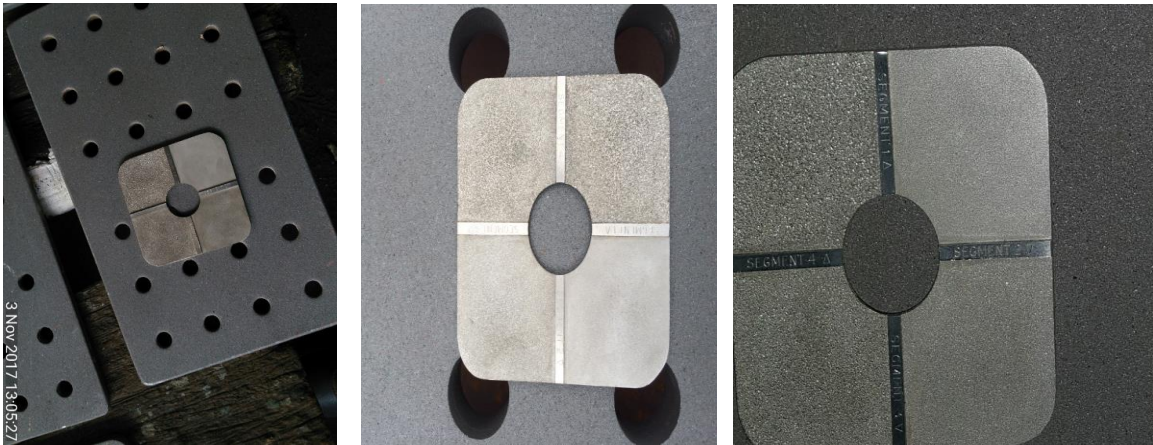


SURFACE PREPARATION STANDARDS

ABRASIVE BLAST CLEANING	SSPC	ISO	NACE	JSRA
EXTREMELY THOROUGH WHITE METAL BLAST	SP5	Sa 3	No 1	Sd 3
VERY THOROUGH NEAR WHITE METAL BLAST	SP10	Sa 2.5	No 2	Sd 2
THOROUGH COMMERCIAL BLAST	SP6	Sa 2	No 3	Sd 1
LIGHT BRUSH-OFF BLAST	SP7	Sa 1	No 4	

6) Surface Profile Testing to conform & agreeable as per the PDS or nature in accordance to ASTM D4417 Method-A to C-

ASTM D4417 Method “A”



This is done by using Elcometer or any Certified Comparator which is Visual & Touch base recognized & approved test by all the independent standard institutions available for Corrosion Control Industry. You are supposed to compare the blasted surface to the nearest segment applicable for the scope of work as per the system specification.

ASTM D4417 Method “B”

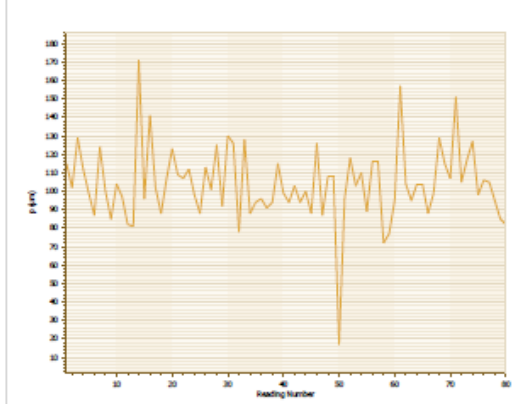


Statistical Analysis of the Blast Profile Size and its distribution

Inspection Report - Profile

Heritance Aarah-Adaaran Blast Profile Measuring over the Plates started today
17052019\
Batch 7

Individuals / Run Chart



Histogram



Project	
Name	Heritance Aarah-Adaaran Blast Profile M
Gauge	
Type	Elcometer 224/2
Serial #	RB01862
Probe	
Type	P1
Serial #	RA00668
Calibration	
Calibration Method	Zero
Type	P1
Date	5/14/2019 4:56 PM
Thick Foil	N/A
Thin Foil	0.0
Batch	
Type	D
Standard	Immediate
Name in Gauge	Batch 7
User ID	Batch 7
Created Date	5/17/2019 4:41:55 PM
Updated Date	5/17/2019 4:41:55 PM
First Reading Date	5/17/2019 4:44:28 PM
Last Reading Date	5/17/2019 4:47:11 PM
Statistics	
# Readings	80
Mean	103.99 µm
Maximum	171.0 µm
Minimum	17.0 µm
Standard Deviation (σ)	20.48 µm
Mean + 3σ	165.42 µm
Mean - 3σ	42.56 µm
Coefficient of Variation	19.7%

ASTM D4417 Method "C"

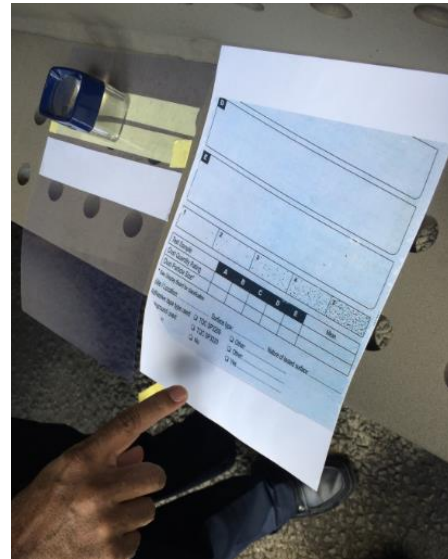
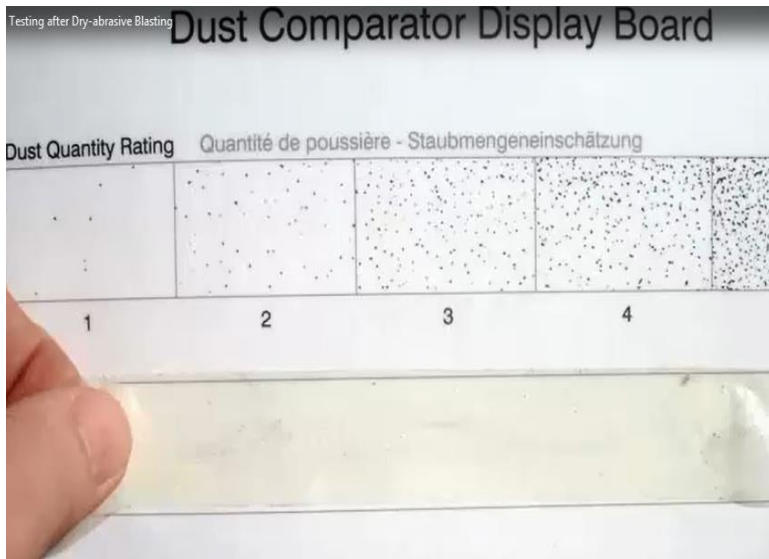


This is done by using Textes Tape and micron (μ) measuring meter to obtain the profile copied into a compressible form in the tape and make the measuring then deducted the tape thickness of 50μ (= 2 mils) which is the standard maintain in the world and sole tape manufacturers available in USA & UK then obtain the final value. Tape Type & Size selection is the duty of the qualified inspector depending upon the target profile value as per the Product Data Sheet (PDS), Specification & other considerable factors in steel moments, exposure condition & etc.

7) Surface Conductivity Test to ensure that surface remains with an acceptable conductivity level in accordance to ISO8502-6:2006 & ISO8502-9:1998)



8) Surface Dust Level Testing as per the PDS specified Dust Size Class & Rating (Reference Standard ISO8502-3:1992)



**Elcometer 142 Dust Assessment
In Accordance With ISO 8502-3**

Evaluation de la quantité de poussière selon ISO 8502-3 - Staubabschätzung in Übereinstimmung mit ISO 8502-3

Name: D Smith Date: 18/11/2009 Time: 08.30
 Nom - Name Date - Datum Heure - Zeit

Company: ABCO Ltd Location: D/B W/S EL-1.6
 Société - Firma Lieu - Ort

Dust quantity rating (Mean): 2
 Quantité de poussière (moyenne):
 Staubmengeneinschätzung (Durchschnitt)

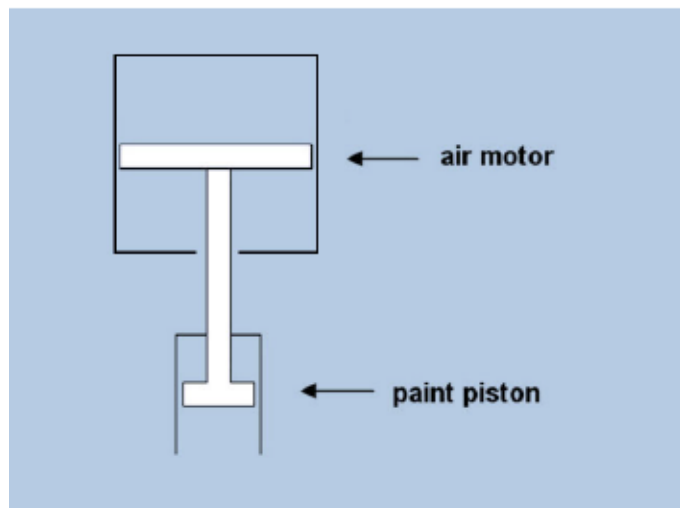
Dust particle size: (See table) 2
 Taille des particules de poussière. (voir tableau)
 Staubpartikelgröße: (Vgl. Tabelle)

Test 1	
Test 2	
Test 3	

9) This is machine Brand, Type & description general check only to ensure its capacity of build-up the film with High Solid levels



What Does Ratio Mean?

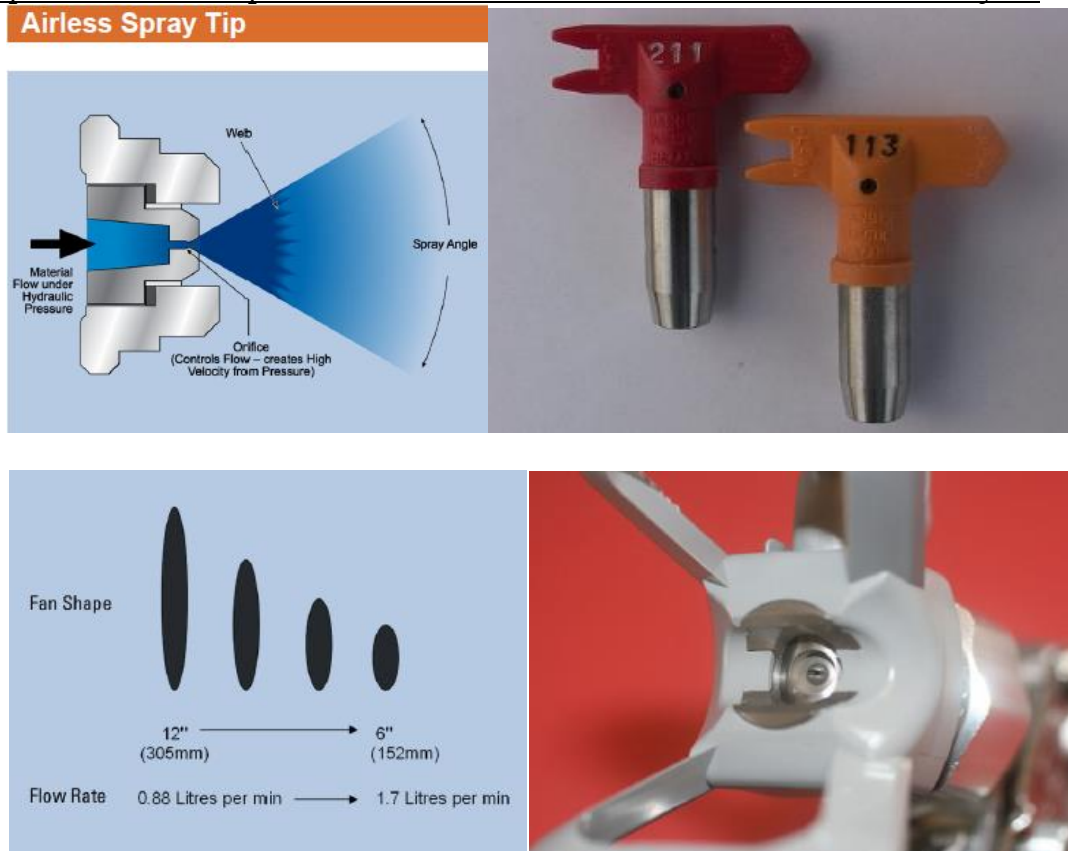


Airless spray units are designed with various ratios. Examples of ratios include 30:1, 45:1 and 68:1. The ratio is the relationship between the effective area of the air motor piston and the lower pump assembly. The applicator should consider the product, thickness, type of surface, pressure etc before considering the size of spray unit. Bigger is not always better when considering airless spray application.

If a pump has a ratio of 10:1, it means that the surface area of the air motor piston is 10 x greater than the paint piston surface area.

So, if you put 6.8 bar (100psi) air pressure onto the air motor, the resultant paint pressure will be 10 x greater i.e. 6.8 bar (100 psi) air x 10 = 68 bar (1000 psi) paint pressure. It is important to understand the basics of ratio on an airless machine

10) Tip selections as per the Product Data Sheet & other factor analysis



- Small orifice size is used for thin material.
 - Large orifice size is used for thick material.
 - Greater fluid flow is found with large orifice.
 - Faster coverage is found with large orifice.
- Selection must be done as specified by the Individual Product Data Sheet applicable for each coat.

Ref Example from PDS the (Product –Sigmaguard 720 PDS No:7433)



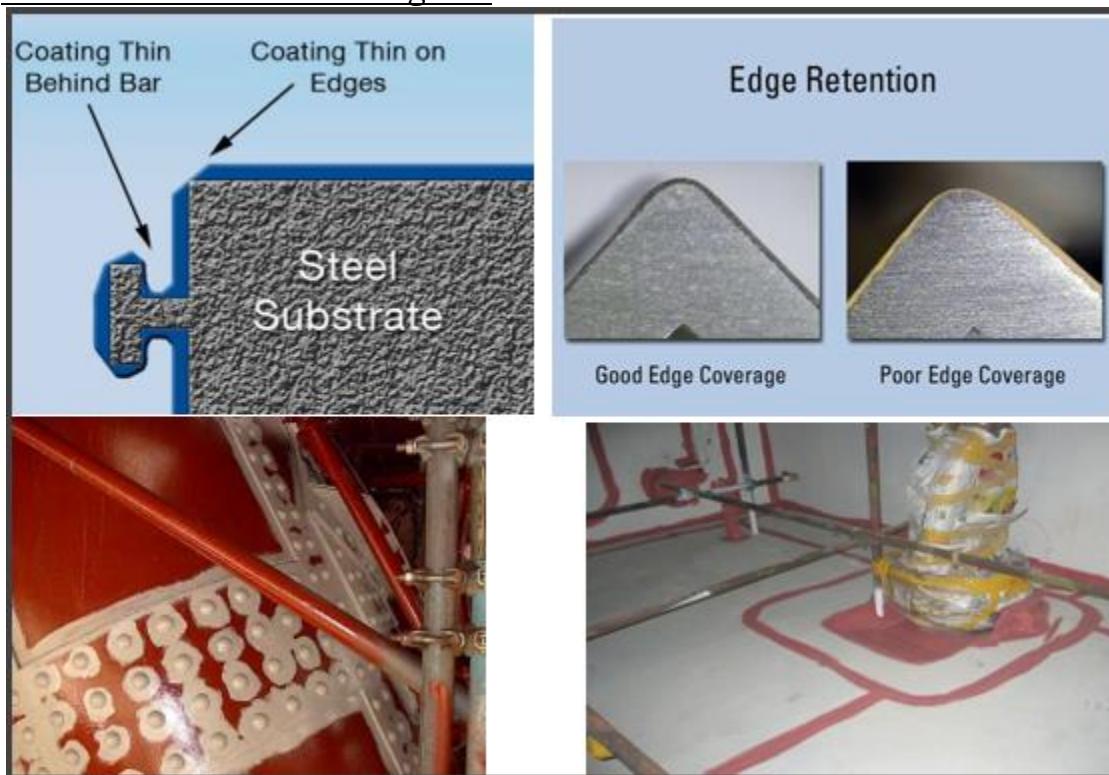
AIRLESS SPRAY

Recommended thinner
Volume of thinner
Nozzle orifice
Nozzle pressure

Thinner 91-92
up to 10% for a one coat application of 125 μm dft
approx. 0.53 - 0.68 mm (= 0.021 - 0.027 in)
15 MPa (= approx. 150 bar, 2130 p.s.i.)

(Recommended Spray Tips should consist between 21 – 27 last (02) digits as the 1st Digit decide the Spray Fan width)

- 11) Brush or Roller availability to apply Stripe Coatings (S/C) over corrosion prone locations-What is Stripe Coatings & its need to build-up the thickness over welds & edges: -

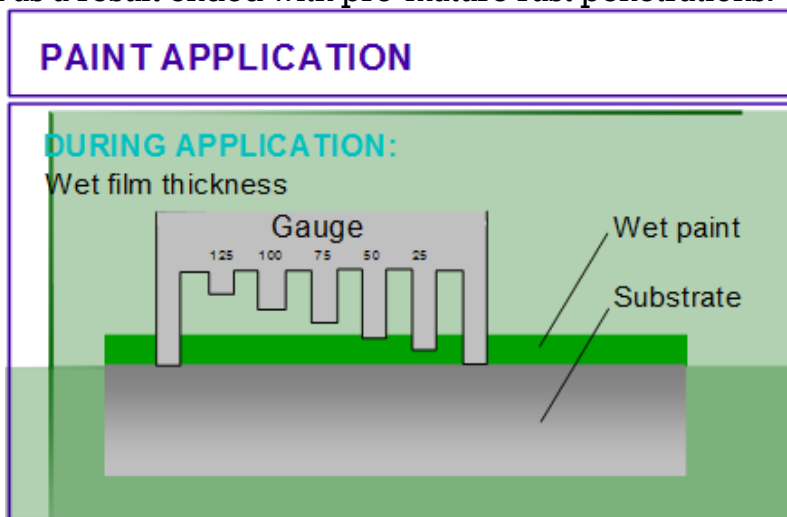


Stripe Coating usually require the below locations in any component being blasted & painted or even manually cleaned & painted.

- Welds, Edges, Corners, Awkward areas, Rivets, Nuts, Bolts and similar nature of locations where sufficient film build is needed.

11) Wet Film Combs should be used and this entrusted the correct thickness application in compliance to the specification (Standards applicable ISO 2808-7B and BS 3900-C5-7)

Wet Film Thickness should firstly be worked out by the Engineer-In-Charge of not already indicated in the system specification which should be available with the applicators and provide to them. It must monitor & see whether the painters are aware of how it is done. Ensure that if the painters are not aware to measure it, please explain them the procedure as in the absence of such measuring will lead for low film thickness build as a result ended with pre-mature rust penetrations.



$$\text{WFT} = \frac{\text{DFT} \times 100}{\text{VS}}$$

$$\text{Wet Film Thickness} = \frac{\text{Dry Film Thickness} \times 100}{\text{Volume Solid}}$$

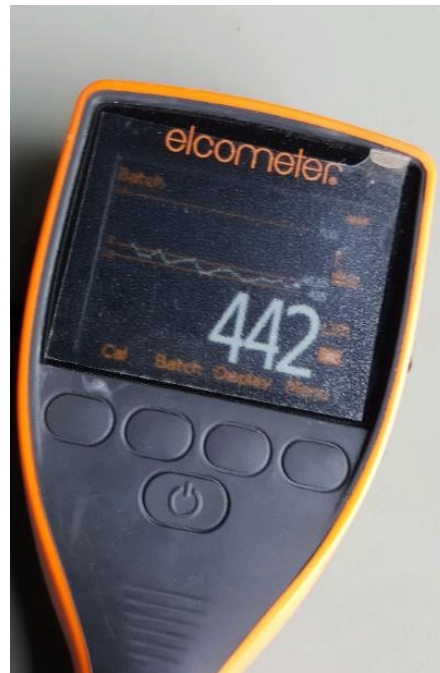
Volume Solid (VS) = Solid Content = Solid Volume [One of these different terminologies be used by different manufacturers which explains the Solid % of the Paint which is given in the Product Data Sheet]

Wet Film Thickness (wft) = Film Thickness gauging obtain by a Wet Film Comb immediately after application in wet condition.

Dry Film Thickness (dft) = Film Thickness gauging obtain after allocating the minimum drying time

Please also make use the attach XL work sheet for easy volume calculations, wft (wet film thickness) calculations & etc, etc what is generally used by me for immediate calculations.

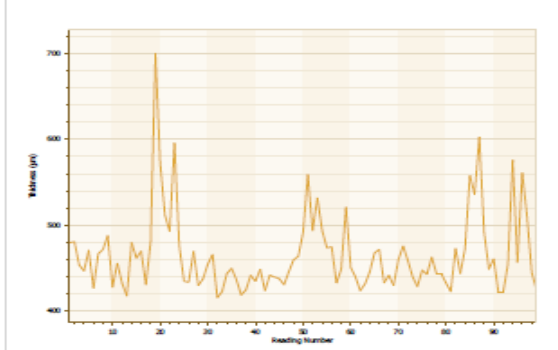
12) Electromagnetic Dry Film Tester or Magnetic Pull-off gauge (Reference Standard-SSPC PA-2 ISO2808:2019 or ASTM D7091-13)



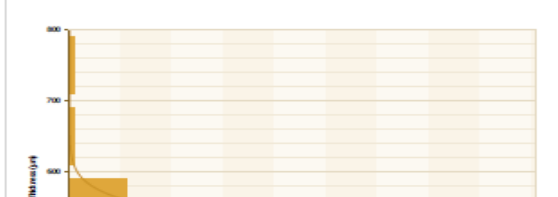
Inspection Report - Dry Film Thickness

Heritage Aarah-Adaaran dft measuring over last batch of Plates including Flat Irons-Primed on 21052019\New Folder\Heritage Aarah-Adaaran dft measuring continuation 24052019\

Individuals / Run Chart



Histogram



Project	
Name	Heritage Aarah-Adaaran dft measuring
Gauge	
Type	Elcometer 456/4
Serial #	UA14441
Probe	
Type	F2
Serial #	UA14543
Calibration	
Calibration Method	Two Point
Type	F1
Date	5/22/2019 2:38 PM
Thick Foil	477.0
Thin Foil	249.0
Batch	
Type	Thickness
Name in Gauge	Batch
User ID	Batch
Created Date	5/24/2019 9:32:35 AM
Updated Date	5/24/2019 9:32:35 AM
First Reading Date	5/24/2019 9:32:38 AM
Last Reading Date	5/24/2019 9:35:40 AM

Statistics	
# Readings	99
Mean	465.62 µm
Maximum	700.0 µm
Minimum	416.0 µm
Standard Deviation (σ)	46.73 µm
Mean + 3σ	605.82 µm
Mean - 3σ	325.41 µm
Coefficient of Variation	10.0%
# Readings < NDFT	24 (24.2%)
# Readings >= NDFT	75 (75.8%)

Limits			
Low Limit	391.5 µm	# Readings Below	0 (0.0%)
NDFT	435.0 µm		

13) LVHD (Low Voltage Holiday Detection) Test **ASTM D5162-08/NACE SP 0188 /ISO 2746/ JIS K6766**

Prior to Low Voltage Holiday Detection (LVHD) it is mandatory that as primary measure to check the dry film thickness on which the voltage regulation should be done with the (03) three Voltage settings as 9V , 67.5V & 90V respectively. This must be carried-out if specified in the coating system specification by the corrosion control methodology designer. This is mandatory for Tank & Pipe Line Internal Surfaces on random basis which is the industry practice.



-Adaaran Steel Building Component Blasting & Painting Exercise
21 May 2019 19:20:59



Heritage Aarah -Adaaran Steel Building Component Blasting & Painting Exercise
21 May 2019 19:09:19



14) Monitoring of an environment factor along with Steel Temperature applicable to remaining ambient conditions adopt to the parameters for surface preparation & painting

It is explained based on below reading appeared in Elcometer 319 Combine Dew Point meter



Ambient Conditions found as below RH-74.1%; Ts-30.6°C; Ta-30.9°C; Td-25.8°C TΔ-4.8°C corresponding to ASTM D3276-07 = ISO8502-4. Applicable parameters no painting permitted when the RH is above 85% while Maximum Ts-Steel Temperature should be = On or below 50°C and TΔ- should be on or above 3°C.

Required Parameters for Coating Application: -

RH (Relative Humidity) should be on or below **85%**.

Steel Temperature Maximum (Ts-max) = **50°C**

Steel Temperature Minimum (Ts-min) = At least 3°C higher to the Dew Point exists at the time of Painting.

TΔ (Difference) = Temperature Steel Ts – Temperature Dew Td

<u>RH</u>	<u>Maximum permitted Time for Coating</u>
85% or above	“No Blasting” – unless <u>exceptions</u> applied
80 - 84%	2 hours
70 - 79%	4 hours
60 - 69%	10 hours (Very sporadic in SL)
50 - 59%	12 hours (This condition remains hardy in Sri Lanka)

Note: “exceptions” applicable to proceed with dry-abrasive blasting even under adverse weather conditions (RH >85%) under shaded blast chamber subject to abrasive sweeping when weather became favorable. It can even be very following day still doesn’t matter provided the above is complied.

15) Test Panel Preparation applicable for New Construction or New Steel Replacement based assignments to conduct the destructive testing (DT) without disturbing

Below photos shows the test plate making procedure dividing the plate into Number of Coats + 1 (To show the Blasted Standard by applying Clear Polyurethane to avoid oxidization). The plate in this event has (05) Five coats in the specification while one segment was reserved to show the blasted surface standard covered with clear polyurethane or suitable transparent material.



A.A.S.Rajaratne
Corrodere Certification No-587
 Consultant / Certified Coating Inspector
 (Corrosion Control & Coatings)
 Off-Shore/On-Shore Segment
 IMO's (International Maritime Organization)
 MSC215(82), MSC244(83), MSC288(87) &
 IACS UI SC223 Complied-Shipbuilding

