



ENVIROPEEL SPECIFICATION AND GUIDELINES



REVISED 11-05

1.0 EQUIPMENT AND MATERIAL

1.1 EQUIPMENT

ITEM	DESCRIPTION
1	Base Unit complete with 10M/30ft Hose & Gun.
2	Zone Two Unit complete with 10M/30ft ATEX Hose & Gun.
3	Slugger 170 Hand Held Unit - Complete Kit
4	19M/60ft ATEX Hose

1.2 MATERIAL

ITEM	DESCRIPTION
1	Enviropeel E170 chips Pack Size: 10 Kg/22lb Tubs Standard color: Grey Other colors: White, Red, Blue, Green & Yellow also available
2	Enviropeel Slugger 170 Slugs Pack Size: 5 Kg/11 lb Tubs Standard color: Grey Other colors: White, Red, Blue, Green & Yellow also available

2.0 PROJECT EXECUTION

2.1 INITIAL SURVEY

Prior to making a quote or deriving cost check following details:

- 1 Geographical details.
- 2 Accessibility to work site.
- 3 Accessibility to work area - scaffolding.
- 4 Substrate type and condition - corrosion degree (If surface preparation is required).
- 5 Zone rating - Hazard / Non Hazardous (Oil & Gas).
- 6 Allowable method of surface preparation - Grit blasting or Water Jetting.
- 7 In-situ operation or shut down.
- 8 Permit to work, submission of Job Hazard Analysis & Work Procedure.
- 9 Allowable working hours and possibility of extension.
- 10 Equipment certification.
- 11 Personal health check - Drug & Alcohol Test.
- 12 Personal Protection Equipment requirement.
- 13 Client's Quality Control requirement - Dry Film Thickness etc.
- 14 Client's requirement on job completion documentation.

2.2 MOBILIZATION AND DEMOBILIZATION

Own transport made available to mobilize the following items;

- 1 Applicator Unit- concept 12 base unit (240 kg/529lbs).
- 2 Generator - 15 KVA with spark arrestor (approximately 350 Kg/770lbs).
- 3 Electrical connectors/Plugs to suit site conditions
- 4 Tool box
- 5 Hand tools - wire brush, scraper
- 6 2-man Team of Enviropeel trained personnel
- 7 Sufficient 170 material.
- 8 Enviropeel Pre-treatment inhibitor
- 9 Inspection Tools - Inspection mirror, Dry Film Thickness Gauge, Digital Thermometer, etc
- 10 External air requirement- 10 bar, min 16 CFM.

One day each should be allocated for mobilisation and demobilisation.

2.3 ESTIMATED COVERAGE RATE OF APPLICATOR & MATERIAL CONSUMPTION.

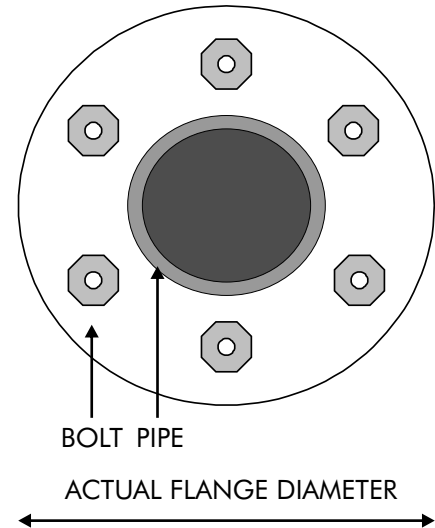
To aid preparation of Enviropeel application projects, there are many aspects of the project to be taken into account which affect not only the quantity of material that will be used, but also the rate at which the material will be applied. For this guide, pipeline flanges are used as an example of material consumption and application rate. All the figures are taken from actual projects carried out both on and offshore.

Flange description

Different companies tend to describe flange sizes in different ways, some will refer to the 'actual diameter' of the flange, others may refer to the diameter of the pipeline associated with the flange. For this guide, 'actual flange diameter' will be used.

Consumption rate

It is very important to understand that flanges vary in description, for example, a selection of flanges may or may not have a gap between the two faces, they will have varying quantities of nuts and bolts fitted, the length of the bolts in each flange may vary, and of course the diameter of the pipeline associated with the flanges will also vary. All these facts directly influence consumption rate, because of this, the information contained in this document is to be used purely as a guideline.



Flange size in inches	Thickness applied in mm/mil	Qty of Enviropeel used in Kg/lbs	Time taken to apply in minutes
4	4/160	0.2/0.44	5
6	4/160	0.3/0.66	7
8	4/160	0.5/1.1	10
10	4/160	0.7/1.5	12
12	4/160	1/2.2	15
24	4/160	2/4.4	25
36	4/160	3/6.6	45

Notes:

The time given may vary from one applicator to another, depending on expertise.

The time given is for complete encapsulation with two coats (2mm/80 mil each), including approximately 5cm/2 inches of coating along the pipe each side of the flange.

Application rates

Rates of Enviropeel application will be affected by many things, such as:

- size and description of the flange (e.g. high pressure flanges have more bolts for a given dia.)
- proximity of the flange (i.e. high, low, awkward position)
- weather conditions
- expertise of the applicator
- percentage of downtime

Downtime

Offshore conditions typically show significantly higher downtime than land-based operations and may lose as much as 50% through operational and safety considerations. Typical issues are:

- Breaks and heating time of the tank
- Site documentation (i.e. permits etc)
- Unit maintenance
- Setting up/moving the equipment
- Site audits/safety briefs
- Flange preparation
- Time taken between flanges
- Material trimming

3.0 WORK PROCEDURE FOR E170 APPLICATION

3.1 SCOPE

This procedure relates to the application of Enviropeel on the flanges, nuts, bolts, pipes and associated components to provide corrosion control.

3.2 DEFINITION

Enviropeel application includes; cleaning, providing surface preparation where necessary, encapsulating with Enviropeel and validation by the Client.

3.3 INFORMATION REQUIRED PRIOR TO WORK COMMENCEMENT

This refers to initial survey results which provides most of the details required to start work. Critical information would be;

- Requirement on surface preparation.
- Substrate type and condition.
- Accessibility.
- Permit to work.
- Safety requirement, etc.

3.4 PROCEDURE

- 3.4.1 Substrate surface should be free from loose rust and other contamination.
- 3.4.2 When the substrate surface condition is extremely badly corroded and may warrant replacement the client should be notified. The item should not be coated with Enviropeel until a decision has been made by the client.
- 3.4.3 Safety at work is of the utmost importance and any unsafe situation/condition in the work area should be notified to the client.
- 3.4.4 The continuity of electrical cables to the Applicator Unit and the power source should be checked and confirmed prior to hook up. Applicator Unit must be operated as per manual.

- 3.4.6 The material in the melting tank must be adequately heated and melted to ensure that the material is fluid for spraying.
- 3.4.7 The Operator should set the air and material pressure to suit the ambient condition and perform trial before actually coating the substrate.
- 3.4.8 The substrate surface must be dry and free from water or moisture.
- 3.4.9 The DFT must be monitored periodically to ensure sufficient amount of material is deposited as per specification.
- 3.4.10 When there is a flange gap, Enviropeel pre-treatment inhibitor should be used to ensure full inhibitor penetration
- 3.4.11 Upon completion of the coating work, all edges should be trimmed and checked for acceptable finish.
- 3.4.12 Customer Representative/Inspector must have access to inspect their items at all stages before and after application.



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