

DIGITAL DATA MANAGEMENT FOR TANK COATING INSPECTION

MARTS – Chicago 2012

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Capture Date 2008:04:14 12:52:32
Focal Length 6.0mm Exposure 0.0031 s (1/320) Aperture f/4.0
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Recent Developments in Inspection Equipment

- Automating inspection data maximizes efficiency
- Gauges such as:
 - Elcometer 456 Coating Thickness Gauge
 - Elcometer 224 Surface Profile Gauge
 - Elcometer 319 Digital Dewpoint Meter



lead the way in digital data capture



Recent Developments in Inspection Data Management

- Elcometer offers two (2) digital data management systems which allow the user to capitalize on our digital data capture abilities:

ElcoMaster™ 2.0

ElcoTank®



► **Scenario:** The tank you're working consists of coating areas that measure approximately 3,000,000 ft². To begin, we'll assume the work will be carried out in 3,000 1000 ft² sections. We'll be taking DFT measurements in accordance with SSPC-PA 2. We'll also assume a three-coat system is to be applied.

**Each Flat Area Requires 5 Spot Measurements
= Average of 3 Individual Readings
= 15 Gage Readings/Flat Area**

**15 Gage Readings/Flat Area X 3000 Flat Areas
= 45,000 Readings/Coat**

**45,000 Readings/Coat X 3 Coats
= 135,000 Readings**



**135,000 Readings x 0.5 Minutes/Reading =
67,500 Minutes**

**67,500 Minutes/60 Minutes/1 Hour = 1,125
Hours**

1,125 Hours/8 Hours/Shift/Day =

**141 Days of just coating thickness
data collection**



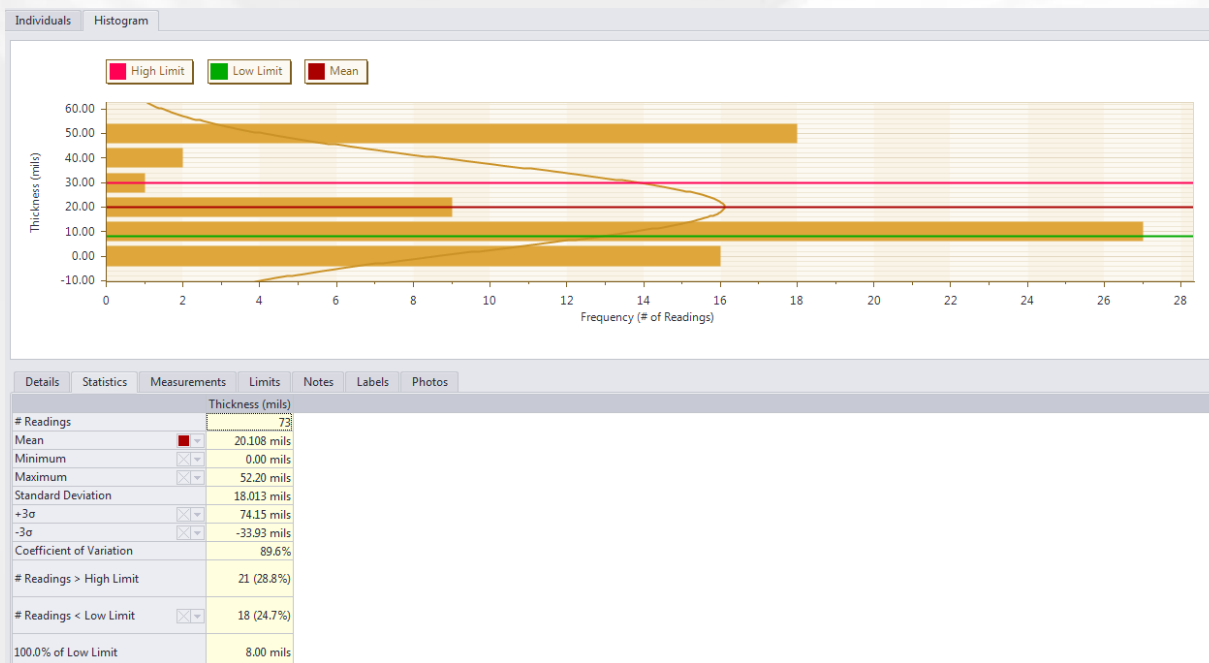
Recent Developments in Inspection Data Management

- ElcoMaster™ 2.0 software provides a means to collect, analyze, report and archive data



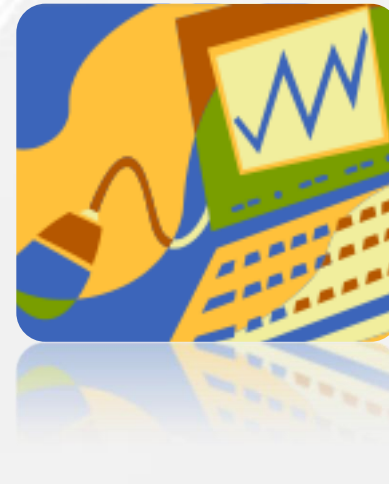
Recent Developments in Inspection Data Management

- Using our “drag and drop” technology, data is displayed in the form or format you choose in minutes



Recent Developments in Inspection Data Management

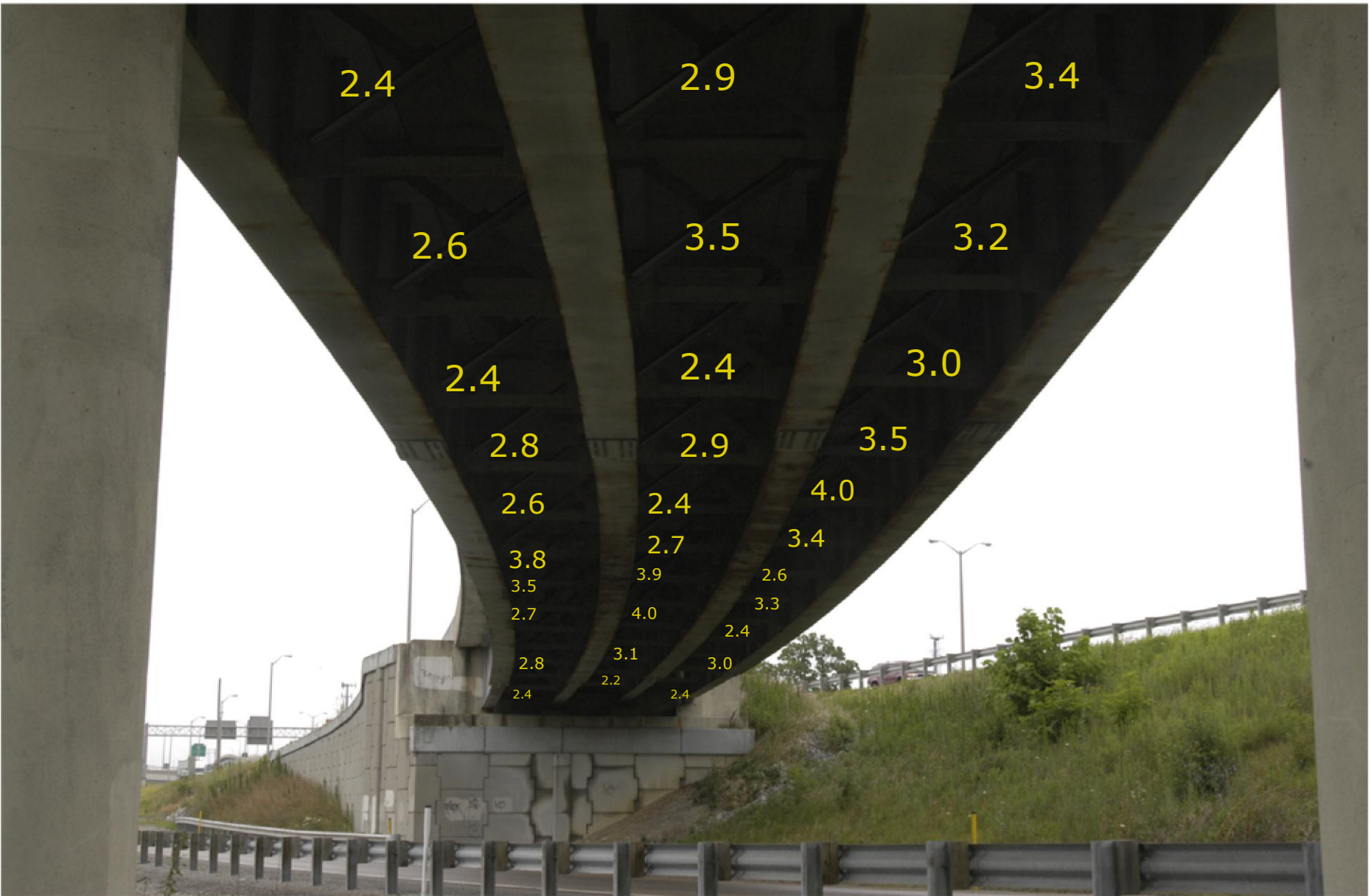
- **ElcoMaster™ 2.0 software allows users to**
 - Monitor measurements remotely via Bluetooth
 - Download readings directly from the gauge into the ElcoMaster data management system



Recent Developments in Inspection Data Management

- ElcoMaster™ 2.0 software allows users to
 - Keep survey notes, inspection reports, photographs, and other inspection information in one key location
 - Create accurate, professional reports configured to allow the data to be easily understood at all levels
 - Create **PDF**, **Excel**, or **CSV** versions of all reports and email them directly
 - From conventional formats to actual site photos and construction drawings





2.4

2.9

3.4

2.6

3.5

3.2

2.4

2.4

3.0

2.8

2.9

3.5

2.6

2.4

4.0

3.8

2.7

3.4

3.5

3.9

2.6

2.7

4.0

3.3

2.8

3.1

3.0

2.4

2.2

2.4

Inspection Requirements

ElcoTank is a paperless solution designed to meet all your coating inspection requirements (visual, manual and electronic) in one easy to use software package which:

- Minimizes report writing
- Maximizes on site inspection time
- Delivers significant cost savings



Inspection Requirements

Primary

| | | |
|--------------|--------------------|---------------|
| NDFT: | 90/10 | Digital |
| Cleanliness: | Sa2½ | Visual |
| Profile: | | Digital |
| Climate: | %RH, Dewpoint | Digital |
| Cleanliness: | mg.m ⁻² | Visual |

Secondary

| | | |
|--------------|--------------------|---------------|
| NDFT: | 90/10 | Digital |
| Cleanliness: | Sa2½ | Visual |
| Profile: | | Digital |
| Cleanliness: | mg.m ⁻² | Visual |
| Dust: | | Visual |

Miscellaneous

| | | |
|----------|--------------------------|---------------|
| Climate | %RH, Dewpoint | Digital |
| NDFT: | 90/10 | Digital |
| Defects: | pinholes, bubbles, voids | Visual |

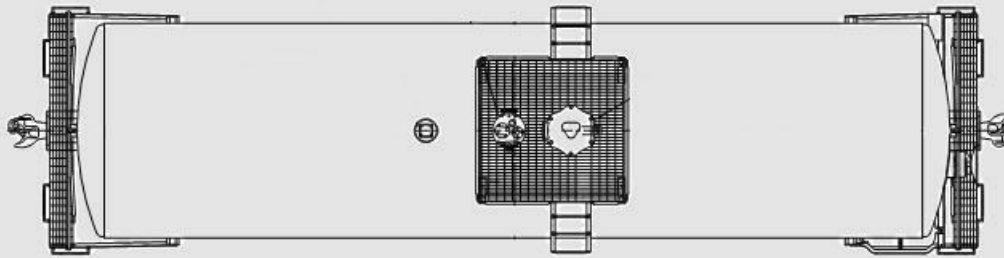


How is data collection linked to the Inspection Requirements?

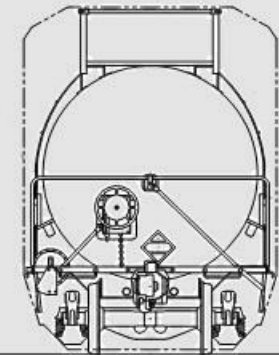
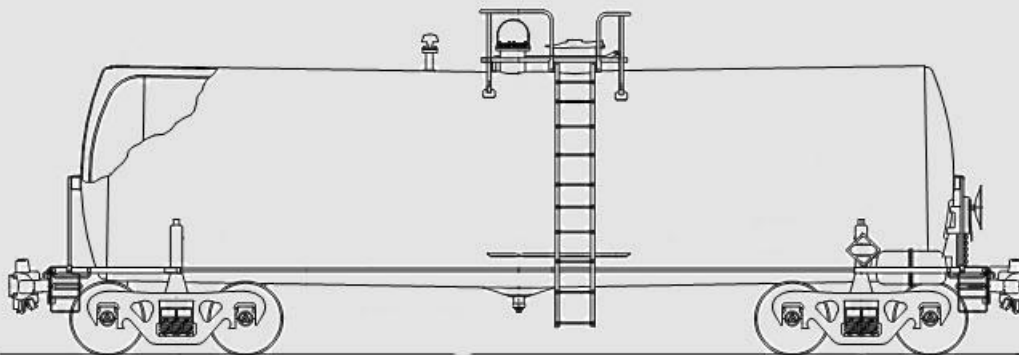
- For the various coating systems;
- at every stage of the construction;
- with numerous inspectors;
- across different railcar types;
- in facilities around the country;
- with different methods



How is data collection linked to the Inspection Requirements?



- The key is planning the coating inspection within the overall build/refit plan using **ElicoTank®** software



Ship Structure

- Ships
 - HN 1234 (SS EXAMPLE I)
 - HN 1234 (Copy of SS EXAMPLE I)
 - 471 (USS)
 - 1039-A (GATX Railcar)

Ship Tasks

- Create new ship...
- Edit selected ship...
- Delete ship...
- Copy selected ship...
- Select Active Ships...

Ship Part Tasks

- Create new ship part...
- Edit selected ship part...
- Delete ship part...
- Copy select ship part...

Coating Systems

Coating Library

Ship Structure

Ship Areas

Ship Documents

Inspection Documents

Inspection Records

Register of Inspectors

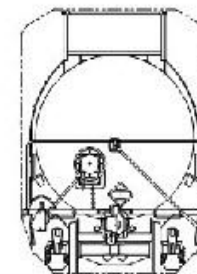
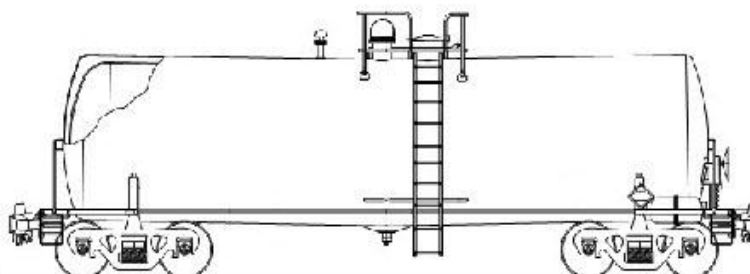
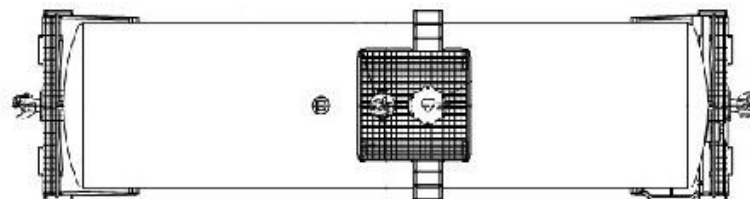
Inspection Regimes

Ship 1039-A (GATX Railcar)

| | | | |
|---|-------------------------------------|---------------------------|-------------------------------------|
| Ship ID: 0000106 | Hull Number: 1039-A | IMO Number: | Classification Number: |
| Ship Name: GATX Railcar | | Customer/Owner: GATX | |
| Contract Date: 2/ 1/2012 | Keel Laying Date: 2/ 9/2012 | Launch Date: 3/31/2012 | Delivery Date: 5/ 1/2012 |
| Gross Tonnage (Metric Tons): 16000.0 | Deadweight (Metric Tons): 7000.0 | Length OA (Feet): 65 | Length BP (Feet): 65 |
| Beam (Feet): 20 | Draft (Feet): 20 | Depth (Feet): 15 | Displacement (Metric Tons): 15.0 |

- Drawings
 - railcar2.jpg
 - railcar.jpg
 - tank car1.jpg

Select Area: Left click within an area jump to that ship part



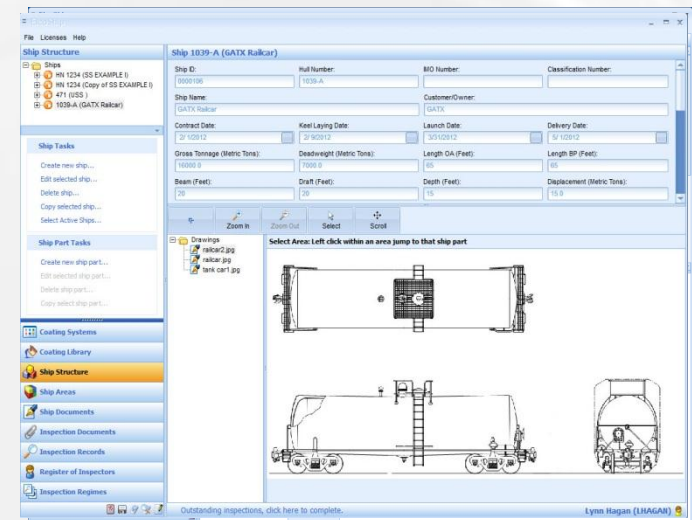
ElcoTank®

- ElcoTank® takes a holistic approach:
 - ElcoTank® is designed to be a coating inspection database for the whole facility or group of facilities.



ElcoTank®

- ElcoTank® can be broken down into 6 sections:
 - From the tank specification:
 - Structure
 - Coatings Library
 - Coating System Library
 - From the inspection processes:
 - Inspector's Register
 - Inspection Records
 - Data Collection
 - All supported by a structured data collection regime, and a "change log"



➤ Structure

EcoSnp

File Licenses Help

Ship Structure

- Ships
 - HN 1234 (SS EXAMPLE I)
 - HN 1234 (Copy of SS EXAMPLE I)
 - 471 (USS)
 - 1039-A (GATX Railcar)

Ship Tasks

- Create new ship...
- Edit selected ship...
- Delete ship...
- Copy selected ship...
- Select Active Ships...

Ship Part Tasks

- Create new ship part...
- Edit selected ship part...
- Delete ship part...
- Copy select ship part...

- Coating Systems
- Coating Library
- Ship Structure**
- Ship Areas
- Ship Documents
- Inspection Documents
- Inspection Records
- Register of Inspectors
- Inspection Regimes

Ship 1039-A (GATX Railcar)

Ship ID: 0000106 Hull Number: 1039-A IMO Number: Classification Number:

Ship Name: GATX Railcar Customer/Owner: GATX

Contract Date: 2/ 1/2012 Keel Laying Date: 2/ 9/2012 Launch Date: 3/31/2012 Delivery Date: 5/ 1/2012

Gross Tonnage (Metric Tons): 16000.0 Deadweight (Metric Tons): 7000.0 Length OA (Feet): 65 Length BP (Feet): 65

Beam (Feet): 20 Draft (Feet): 20 Depth (Feet): 15 Displacement (Metric Tons): 15.0

Zoom In Zoom Out Select Scroll

Drawings

- railcar2.jpg
- railcar.jpg
- tank car1.jpg

Select Area: Left click within an area jump to that ship part

Outstanding inspections, click here to complete.

Lynn Hagan (LHAGAN)

➤ Coatings Library

The screenshot displays the ElcoShip software interface. On the left, a tree view shows the Coatings Library structure:

- Coatings
 - Hempel Paints
 - Hempadur Fibre 47601 (Hempadur Fibre 47601) - Spray
 - International Marine Coatings
 - Intershield 300 (Intershield 300) - Spray
 - Interprime 65 (Interprime 65) - Spray
 - Jotun
 - Balloxy HB Light (Balloxy HB Light) - Spray
 - Balloxy HB Lumi (Balloxy HB Lumi) - Spray
 - Sigma Coatings
 - Sigma Guard 240 (Sigma Guard 240) - Spray**

Below the tree is a 'Coating Library Tasks' panel with options: Create new coating..., Create new coating issue..., Edit selected coating issue..., Copy selected coating..., and Delete selected coating issue... At the bottom left is a navigation menu with items: Ship Structure, Inspection Records, Change Log, Register of Inspectors, Coating Systems, **Coating Library**, Inspection PDAs, and Coating Technical File.

The main 'Coating' panel on the right contains the following fields:

- Coating ID: 0000007
- Issue: 1
- Manufacturer: Sigma Coatings
- Product Name: Sigma Guard 240
- Product ID: Sigma Guard 240
- Application Method: Spray
- Batch Number: -
- Colour: yellow/green
- Thinners: Sigma Thinner 91-92. Volume of thinner: up to 10% for a one coat application of 125 microns dtt
- Mixing Ratio: By volume: base to hardner 75:25
- Nominal Dry Film Thickness (µm): 130.0
- Wet Film Thickness (µm): 166.0
- Profile (µm): 40-70
- Cleanliness: SA2.5
- Surface Temperature (°C): -5.0
- Air Temperature (°C): 10.0
- Humidity (%RH): 85.0
- Note: (Empty text area)
- Datasheets:

| Filename |
|-------------|
| 00_7400.pdf |

At the bottom right are buttons for View, Add, and Remove. The bottom status bar shows 'Details Used By'.

Coatings Library

00_7400.pdf (SECURED) - Adobe Reader

File Edit View Document Tools Window Help

1 / 4 57.2%

DATA

SIGMAGUARD 240
(SIGMAGUARD TANKSHIELD PRIMER)

4 pages September 2005
Revision of January 2003

DESCRIPTION two component high solids polyamine cured epoxy primer

PRINCIPAL CHARACTERISTICS

- to be used for ballast tanks (block application or in situ coating)
- outstanding sea water and crude oil resistance
- excellent corrosion resistance
- good resistance against chemically polluted water
- resistant to well designed cathodic protection
- good low temperature drying

COLOURS AND GLOSS yellow/green - gloss

BASIC DATA AT 20°C (1 g/cm³ = 8.25 lb/US gal; 1 m²/l = 40.7 ft²/US gal)
(data for mixed product)

Mass density 1.4 g/cm³
Volume solids 78 ± 2%
VOC (supplied) max. 167 g/kg (Directive 1999/13/EC, SED)
max. 239 g/l (approx. 2.0 lb/gal)

Recommended dry film thickness 125 - 150 µm * in one coat application

Theoretical spreading rate 6.2 m²/l for 125 µm, 5.2 m²/l for 150 µm *

Touch dry after 7 - 8 hours at 5°C, 5 - 6 hours at 10°C, 2 - 3 hours at 20°C

Overcoating interval min. 7 hours *

Curing time max. 28 days *
see curing table *

(data for components)

Shelf life (cool and dry place) at least 12 months

Flash point base 28°C, hardener 24°C
* see additional data

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

- steel; blast cleaned to a minimum of ISO-Sa2½, blasting profile (R_a) 40-70 µm
- steel with approved zinc silicate shop primer; sweep blasted to SPSS-Ss or power tool cleaned to SPSS-PS3
- previous epoxy coats; dry and free from any contamination and sufficiently roughened if necessary
- substrate temperature at least 3°C above dew point and free from ice
- maximum relative humidity during application and curing is 85%
- application at temperatures down to -5°C is possible but curing will be reached when temperature increases

SYSTEM SPECIFICATION marine system sheet 3106

Page 1/4

SIGMA COATINGS

ElcoShip

Coating Library

- Coatings
 - Hempel Pair
 - Hempac
 - Internationa
 - Intershi
 - Interprin
 - Jotun
 - Baloxoy
 - Baloxoy
 - Sigma Coat
 - Sigma

Coating Library

- Create new coat
- Create new coat
- Edit selected coe
- Copy selected co
- Delete selected c

Ship Structure

Inspection Rec

Change Log

Register of Ins

Coating Syste

Coating Library

Inspection PDV

Coating Technical File

Issue: 1

Product ID: Sigmaguard 240

Colour: yellow/green

Mixing Ratio: By volume: base to hardner 75:25

Wet Film Thickness (µm): 166.0

Cleanliness: SA2.5

Humidity (%RH): 85.0

View Add Remove

Details Used By

➤ Coating Systems

The screenshot shows the ElcoShip software interface for managing Coating Systems. The main window is titled "ElcoShip" and contains a menu bar (File, Help) and a toolbar. The interface is divided into several sections:

- Coating Systems (Tree View):** A hierarchical tree on the left shows the structure:
 - Coating Systems
 - Ballast Tank
 - Jotun Paint Ballast 2
 - Issue 1
 - Jotun Paint Ballast 1
 - Issue 1
 - International Paint 1
 - Issue 1

- Coating System (Form):** The main area for editing a coating system.
- Coating System ID: 000004
- Issue: 1
- Description: Jotun Paint Ballast 1
- Group: Ballast Tank
- Custom Dry Film Thickness Target
- Dry Film Thickness Target (µm): 700.0
- Steps: A table listing the application steps.
- Coating Systems Tasks:** A list of actions:
- Create new coating system...
- Create new coating system issue...
- Edit selected coating system issue...
- Delete selected coating system issue...
- Navigation Panel:** A vertical sidebar on the bottom left with icons for:
- Ship Structure
- Inspection Records
- Change Log
- Register of Inspectors
- Coating Systems** (highlighted)
- Coating Library
- Inspection PDAs
- Coating Technical File
- Buttons:** "Add" and "Remove" buttons are located at the bottom right of the main area.
- Footer:** "Details Used By" is visible at the bottom of the window.

Register of Inspectors

The screenshot displays the ElcoShip software interface. The window title is "ElcoShip" and it has a menu bar with "File" and "Help".

Register of Inspectors

Inspector

Inspector ID: 0000004

Account enabled

Account type: Inspector

Username: jpod

Full name: Jane Podkin

Password: [masked]

Confirm Password: [masked]

Certificate Number: NACE 2785

Certificate Expiry Date: 01/02/2010

Files:

| Filename |
|-----------------|
| jane.jpg |
| Certificate.jpg |

View Add Remove

Inspectors Tasks

- Create new inspector...
- Edit selected inspector...

Ship Structure

- Inspection Records
- Change Log
- Register of Inspectors**
- Coating Systems
- Coating Library
- Inspection PDAs
- Coating Technical File

Register of Inspectors

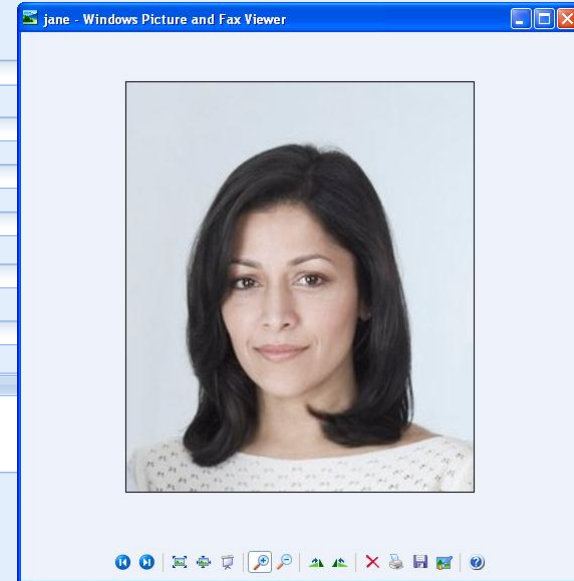
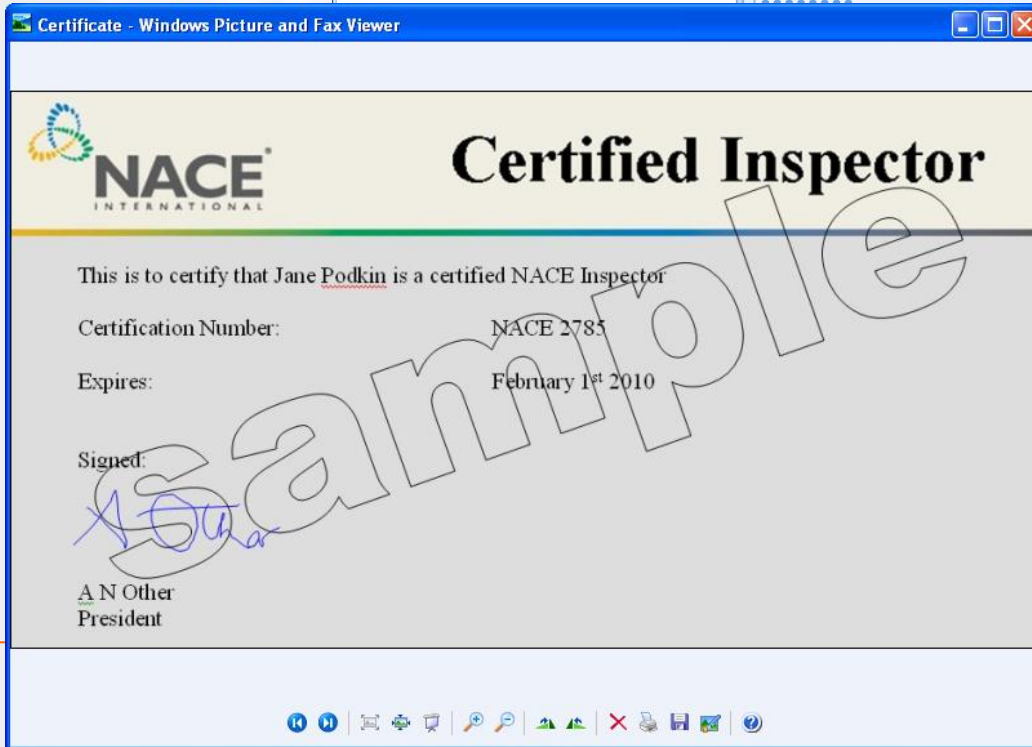
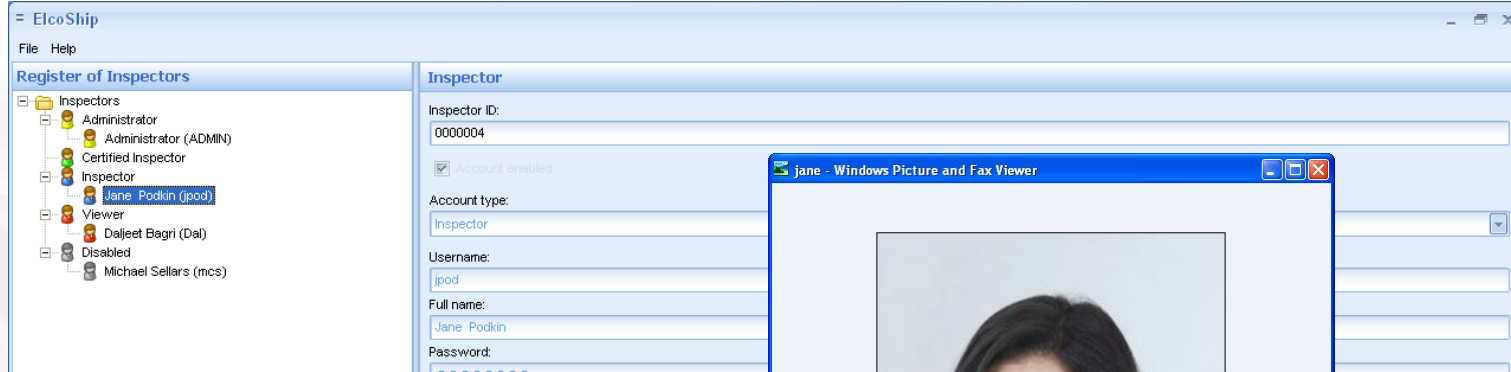
The screenshot displays the ElcoShip software interface. The main window is titled "ElcoShip" and has a menu bar with "File" and "Help". The left sidebar contains a "Register of Inspectors" section with a tree view of users: Administrator, Administrator (ADMIN), Certified Inspector, Inspector, Jane Podkin (jpod), Viewer, Daljeet Bagri (Dal), Disabled, and Michael Sellars (mcs). Below this is an "Inspectors Tasks" section with buttons for "Create new inspector..." and "Edit selected inspector...". At the bottom of the sidebar is a "Ship Structure" menu with options: "Inspection Records", "Change Log", "Register of Inspectors" (highlighted), "Coating Systems", "Coating Library", "Inspection PDAs", and "Coating Technical File".

The main area is titled "Inspector" and shows the profile for Jane Podkin (jpod). The fields are as follows:

- Inspector ID: 0000004
- Account enabled
- Account type: Inspector
- Username: jpod
- Full name: Jane Podkin
- Password: [masked]
- Confirm Password: [masked]
- Certificate Number: NACE 2785
- Files:
 - Filename
 - jane.jpg
 - Certificate.jpg

An overlaid window titled "jane - Windows Picture and Fax Viewer" displays a portrait photo of Jane Podkin. The window has standard Windows controls and a toolbar at the bottom.

➤ Register of Inspectors



Inspection Records

ElcoShip

File Help

Inspection Records

Ships

- 12345 (ACME MARINE)
 - Units
 - Unit Joins
 - Blocks
 - Block Joins
 - Super Blocks
 - Erection Joins
 - Ballast Tanks
 - BT1
 - BH1 (Forward B/thead)
 - BH2 (Aft B/thead)
 - PH (Port Hullside)
 - SH (Staboard Hullside)
 - Deck (Topside)
 - Bottom (Bottomside)
 - BT2
 - BT6
 - BT3
 - 12346 (Zeal Newt)

Inspection Records Tasks

Create inspection...

Ship Structure

Inspection Records

Change Log

Register of Inspectors

Coating Systems

Coating Library

Inspection PDAs

Coating Technical File

Inspections for ship 12345 (ACME MARINE)

View Print Form Complete Rework Delete

All Completed Requires Rework Active Ready

| ID | Ship | Ship Part | Surface ID | Type | Stage | Status |
|---------|---------------------|-----------|-------------------|----------------------|--------------------|-------------------------------|
| 0000060 | 12345 (ACME MARINE) | BT6 | All Surfaces | Thickness inspection | After Coating | Active |
| 0000058 | 12345 (ACME MARINE) | BT6 | All Surfaces | Thickness inspection | After Coating | Completed (Failed - Reworked) |
| 0000056 | 12345 (ACME MARINE) | BT1 | BH2 (Aft B/thead) | Visual inspection | Before Preparation | Completed (Failed) |
| 0000055 | 12345 (ACME MARINE) | BT2 | Hull | Profile inspection | After Preparation | Active |
| 0000054 | 12345 (ACME MARINE) | BT2 | Hull | Thickness inspection | After Coating | Active |
| 0000053 | 12345 (ACME MARINE) | BT2 | Hull | Climate inspection | Miscellaneous | Active |
| 0000052 | 12345 (ACME MARINE) | BT2 | Hull | Salt inspection | After Preparation | Active |
| 0000051 | 12345 (ACME MARINE) | BT2 | Hull | Damage inspection | Miscellaneous | Active |
| 0000050 | 12345 (ACME MARINE) | BT2 | Hull | Visual inspection | After Coating | Active |
| 0000049 | 12345 (ACME MARINE) | BT2 | Hull | Visual inspection | After Preparation | Active |
| 0000048 | 12345 (ACME MARINE) | BT2 | Hull | Visual inspection | Before Preparation | Active |
| 0000047 | 12345 (ACME MARINE) | BT2 | Deck | Profile inspection | After Preparation | Active |
| 0000046 | 12345 (ACME MARINE) | BT2 | Deck | Thickness inspection | After Coating | Active |
| 0000045 | 12345 (ACME MARINE) | BT2 | Deck | Climate inspection | Miscellaneous | Active |
| 0000044 | 12345 (ACME MARINE) | BT2 | Deck | Salt inspection | After Preparation | Active |
| 0000043 | 12345 (ACME MARINE) | BT2 | Deck | Damage inspection | Miscellaneous | Active |
| 0000042 | 12345 (ACME MARINE) | BT2 | Deck | Visual inspection | After Coating | Active |
| 0000041 | 12345 (ACME MARINE) | BT2 | Deck | Visual inspection | After Preparation | Active |
| 0000040 | 12345 (ACME MARINE) | BT2 | Deck | Visual inspection | Before Preparation | Active |
| 0000039 | 12345 (ACME MARINE) | BT2 | Starboard Side | Profile inspection | After Preparation | Active |
| 0000038 | 12345 (ACME MARINE) | BT2 | Starboard Side | Thickness inspection | After Coating | Active |
| 0000037 | 12345 (ACME MARINE) | BT2 | Starboard Side | Climate inspection | Miscellaneous | Active |
| 0000036 | 12345 (ACME MARINE) | BT2 | Starboard Side | Salt inspection | After Preparation | Active |
| 0000035 | 12345 (ACME MARINE) | BT2 | Starboard Side | Damage inspection | Miscellaneous | Active |
| 0000034 | 12345 (ACME MARINE) | BT2 | Starboard Side | Visual inspection | After Coating | Active |
| 0000033 | 12345 (ACME MARINE) | BT2 | Starboard Side | Visual inspection | After Preparation | Active |
| 0000032 | 12345 (ACME MARINE) | BT2 | Starboard Side | Visual inspection | Before Preparation | Active |
| 0000031 | 12345 (ACME MARINE) | BT2 | Portside | Profile inspection | After Preparation | Active |
| 0000030 | 12345 (ACME MARINE) | BT2 | Portside | Thickness inspection | After Coating | Active |
| 0000029 | 12345 (ACME MARINE) | BT2 | Portside | Climate inspection | Miscellaneous | Active |
| 0000028 | 12345 (ACME MARINE) | BT2 | Portside | Salt inspection | After Preparation | Active |
| 0000027 | 12345 (ACME MARINE) | BT2 | Portside | Damage inspection | Miscellaneous | Active |
| 0000026 | 12345 (ACME MARINE) | BT2 | Portside | Visual inspection | After Coating | Active |
| 0000025 | 12345 (ACME MARINE) | BT2 | Portside | Visual inspection | After Preparation | Active |
| 0000024 | 12345 (ACME MARINE) | BT2 | Portside | Visual inspection | Before Preparation | Active |
| 0000023 | 12345 (ACME MARINE) | BT2 | BH2 | Profile inspection | After Preparation | Active |
| 0000022 | 12345 (ACME MARINE) | BT2 | BH2 | Thickness inspection | After Coating | Active |
| 0000021 | 12345 (ACME MARINE) | BT2 | BH2 | Climate inspection | Miscellaneous | Active |
| 0000020 | 12345 (ACME MARINE) | BT2 | BH2 | Salt inspection | After Preparation | Active |
| 0000019 | 12345 (ACME MARINE) | BT2 | BH2 | Damage inspection | Miscellaneous | Active |
| 0000018 | 12345 (ACME MARINE) | BT2 | BH2 | Visual inspection | After Coating | Active |
| 0000017 | 12345 (ACME MARINE) | BT2 | BH2 | Visual inspection | After Preparation | Active |
| 0000016 | 12345 (ACME MARINE) | BT2 | BH2 | Visual inspection | Before Preparation | Active |
| 0000015 | 12345 (ACME MARINE) | BT2 | BH1 | Profile inspection | After Preparation | Active |
| 0000014 | 12345 (ACME MARINE) | BT2 | BH1 | Thickness inspection | After Coating | Active |
| 0000013 | 12345 (ACME MARINE) | BT2 | BH1 | Climate inspection | Miscellaneous | Active |

List Overview

- Data Collection

- Data can be collected 3 ways:

- Gauge - ElcoTank
- Gauge – Smart Device; Smart Device - ElcoTank®
- Gauge – PC; PC - ElcoTank® via attachment



Data Collection - in a structured manner

- Inspection of a unit, block etc. can be scheduled by ElcoTank® and:
 - Sent to the Inspector's Smart Device via **e-mail or pc sync**.
 - Printed out as a **hard copy** inspection record
- Once the data has been collected - including visual & digital inspection, photographs & digital signature, it can be:
 - e-mailed from the Smart Device back to Elcotank® for automatic update
 - transferred via pc sync.
 - Scanned and attached as a file in Elcotank®

➤ Data Collection - in a structured manner

The screenshot displays the ElcoShip software interface, which is used for managing inspection records for ships. The main window is titled "Inspections for ship 12345 (ACME MARINE) - ship part BT3".

Left Panel: Inspection Records

- Ships
 - 12345 (ACME MARINE)
 - Units
 - Unit Joins
 - Blocks
 - Block Joins
 - Stern Section - Propshaft Join
 - Super Blocks
 - Erection Joins
 - Ballast Tanks
 - BT1
 - BH1 (Forward Bhead)
 - BH2 (Aft Bhead)
 - PH (Port Hullside)
 - SH (Starboard Hullside)
 - Deck (Topside)
 - Bottom (Bottomside)
 - BT2
 - BT6
 - BT3
 - 12346 (Zeal Newt)

Main Window: Inspections for ship 12345 (ACME MARINE) - ship part BT3

Buttons: View, Print Form, Complete, Rework, Delete

Status: All, Completed, Requires Rework, Active, Ready

| ID | Ship | Ship Part | Surface ID | Type | Stage | Status |
|----|------|-----------|------------|------|-------|--------|
| | | | | | | |

Create Inspection Dialog

Ship: 12345 (ACME MARINE)

Part: BT3

Inspection for Inspector: Administrator

Inspection Type: Coating Thickness Inspection - Final

Surfaces:

| | Location | Surface ID | Coating System | IMO | Coating | Final Coat | Select |
|---|----------|--------------|---------------------------------|-----|---------|------------|--------|
| 1 | Internal | All Surfaces | Jotun Paint Ballast 1 : Issue 1 | Yes | | No | No |

Output: Save, Save and Print Forms, Save and Email to FDA, Save and Transfer to PDA

Bottom Left Panel: Inspection Records Tasks

- Create inspection...
- Ship Structure
- Inspection Records**
- Change Log
- Register of Inspectors
- Coating Systems
- Coating Library
- Inspection PDAs
- Coating Technical File

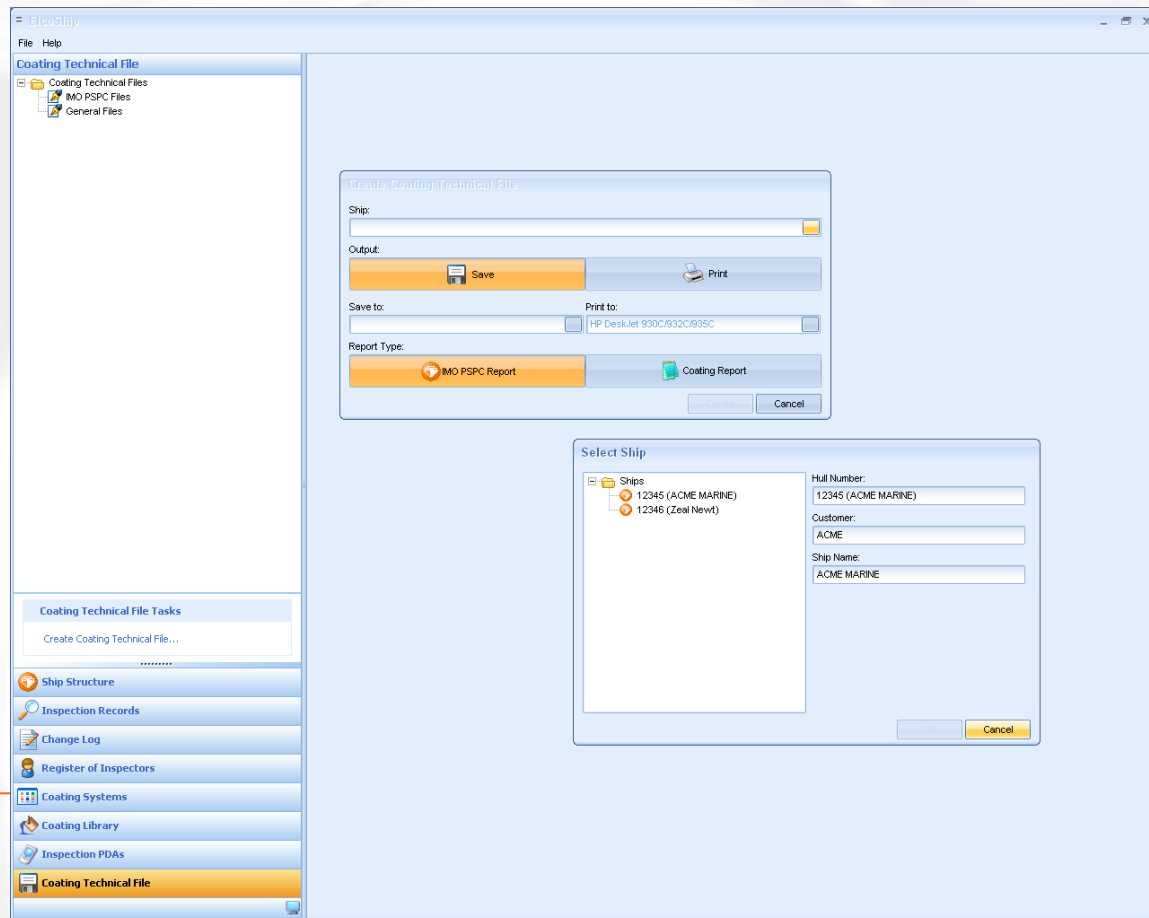
Bottom Right Panel: Select Coating

| | Coating | Type | Colour | Application Method | IDFT (µm) |
|---|--|--------|--------------|--------------------|-----------|
| 1 | Balloxy HB Light (Balloxy HB Light) : Issu | Full | Beige, Green | Spray | 175.0 |
| 2 | Balloxy HB Light (Balloxy HB Light) : Issu | Full | Beige, Green | Spray | 175.0 |
| 3 | Balloxy HB Light (Balloxy HB Light) : Issu | Stripe | Beige, Green | Spray | 175.0 |
| 4 | Balloxy HB Light (Balloxy HB Light) : Issu | Stripe | Beige, Green | Spray | 175.0 |

Buttons: Select, Cancel

- The Coatings Files
- The Coatings Report can be created at the click of a mouse and

- Saved to file
- Printed



➤ The Change Log - recording all actions automatically

ElcoShip
File Help

Change Log

By Ship Part By Inspector All

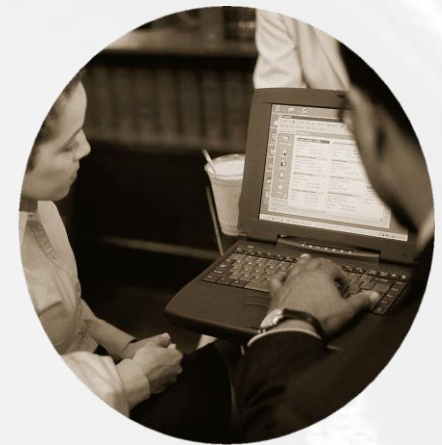
All data
Data for the past ...
Hour
Data between date range:
From: 19/02/2008 To: 20/02/2008

| Date | ID | Type | Inspector | Description |
|---------------------|---------|------------------------------|---------------|--|
| 19/02/2008 16:00:57 | 0000059 | Inspector Login | Administrator | Inspector login |
| 19/02/2008 15:28:34 | 0000058 | Inspector Logout | Administrator | Inspector logout |
| 19/02/2008 15:27:56 | 0000057 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:26:59 | 0000056 | Part Edited | Administrator | Part CH 1 on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:26:33 | 0000055 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:23:53 | 0000054 | Coating System Issue Created | Administrator | Coating System Cargo Hold Coating System issue 1 created |
| 19/02/2008 15:22:40 | 0000053 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:21:20 | 0000052 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:20:47 | 0000051 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:19:11 | 0000050 | Part Edited | Administrator | Part BT1-2 on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:18:29 | 0000049 | Part Edited | Administrator | Part BT1-1 on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:17:41 | 0000048 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:16:26 | 0000047 | Part Edited | Administrator | Part BT1-2 on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:16:05 | 0000046 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:14:25 | 0000045 | Part Edited | Administrator | Part BT 1b & 1c on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:12:46 | 0000044 | Inspector Login | Administrator | Inspector login |
| 19/02/2008 16:00:57 | 0000059 | Inspector Login | Administrator | Inspector login |
| 19/02/2008 15:28:34 | 0000058 | Inspector Logout | Administrator | Inspector logout |
| 19/02/2008 15:27:56 | 0000057 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:26:59 | 0000056 | Part Edited | Administrator | Part CH 1 on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:26:33 | 0000055 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:23:53 | 0000054 | Coating System Issue Created | Administrator | Coating System Cargo Hold Coating System issue 1 created |
| 19/02/2008 15:22:40 | 0000053 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:21:20 | 0000052 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:20:47 | 0000051 | Ship Created | Administrator | Ship 12345 (ACME MARINE) created |
| 19/02/2008 15:19:11 | 0000050 | Part Edited | Administrator | Part BT1-2 on ship 12345 (ACME MARINE) edited |
| 19/02/2008 15:18:29 | 0000049 | Part Edited | Administrator | Part BT1-1 on ship 12345 (ACME MARINE) edited |

Ship Structure
Inspection Records
Change Log
Register of Inspectors
Coating Systems
Coating Library
Inspection PDAs
Coating Technical File

Elcometer® Software Solutions - Conclusions

- Direct links with digital gauges are facilitated
- Input from spreadsheets, scanned documents, .pdf, .doc and other formats are allowed
- ElcoTank provides a method for planning and recording the coating inspection processes during a build/refit.



DIGITAL DATA MANAGEMENT FOR TANK COATING INSPECTION

**THANK YOU
FOR YOUR ATTENTION**

Questions & Answers

