

RUST-X
REST WITHOUT RUST

RUST-X for ENGINE Packaging

+ About us



- RUST-X is NO.1 VCI COMPANY IN INDIA
- HIGHEST TECHNICAL EXPERTISE IN INDUSTRY
- VCI IS REGISTERED TRADEMARK AND PATENT OF RUST-X HI TECH INTERNATIONAL
- MANUFACTURING LOCATION :
 - KHOPOLI, MAHARASHTRA
 - LUDHIANA, PUNJAB
 - MANESAR, GURGAON
- SUPPLIERS TO OVER 5000+ COMPANIES IN INDIA
- NETWORK IN ALL STATES OF INDIA

+ Our Brands

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VCI Anti Corrosion products
& Industrial Lubricants



Moisture Control Desiccants



PARKER

Automotive Lubricants



AQUAFLUSH

Industrial Cleaning Agents

+ Promoters

■ Sidharth Sareen – Technical Director

- Polymer/Chemical Engineer – Honours
- RMIT Australia & Harvard Business School
- Worked at Shell Refinery
- Worked with Reserve Bank of Australia in Plastic Currency Printing Division

■ Mukul Sareen

- Director Business Development
- RMIT Australia & Harvard Business School
- Logistics Manager at Coca Cola Australia

Customers



HI-TECH
INTERNATIONAL

OEM



AUTO COMPONENT MANUFACTURERS



AND OVER 2000+ CUSTOMERS WORLDWIDE

CATERPILLAR®



+ Corrosion due to improper packaging design

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What Went Wrong?

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+ We even stretch wrapped! **RUSTX**
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Where did the water come from even when the boxes were stretch wrapped and placed in the container?



+ We even oiled!



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+ These were painted on rust!!

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+ Powder Coated Components

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- ***Problem : In process rusting grown out of proportion beneath the coating layer during shipment***

+ Aluminum Components (White rust)

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Corrosion Due to Contact with Corrugations

+ Aluminum Components (White rust)

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Corrosion Due to Hygroscopic Nature of Corrugations

+ Cummins Pipes

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Corrosion Due to
Moisture Settling on Parts
And Inadequate VCI Protection

- + Salt marks after washing and rust formation

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+ FORD MTG BRACKET RUST ISSUE



RECVING CONDITION



RECVING CONDITION



RECVING CONDITION



RUST OBSERVED IN SEPERATOR



RUST OBSERVED IN BRKT



RUST OBSERVED IN BRKT



RUST OBSERVED IN BRKT



RUST OBSERVED IN BRKT

+ Rusted Parts (OE Imports)

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+ OE Exports + RUSTX =



- Volvo Power Train= 100% Share
- Mahindra & Mahindra = 100% Share
- SAME-DEUTZ FAHR = 100% Share
- Mahindra ITEC Project = 100% Share
- VE Commercial = 100 % Share
- Maruti Suzuki = 100% Share
- Suzuki Motorcycle = 100% Share
- HONDA= 100% Share
- Caterpillar = 100% Share
- CLAAS India = 100% Share
- YAMAHA = 100% Share
- NEW HOLLAND = 100% Share
- International Tractors Ltd = 100% Share
- Tata Auto Components = 100% of TACO Vendors
- Ashok Leyland

+ TEAM RUST-X



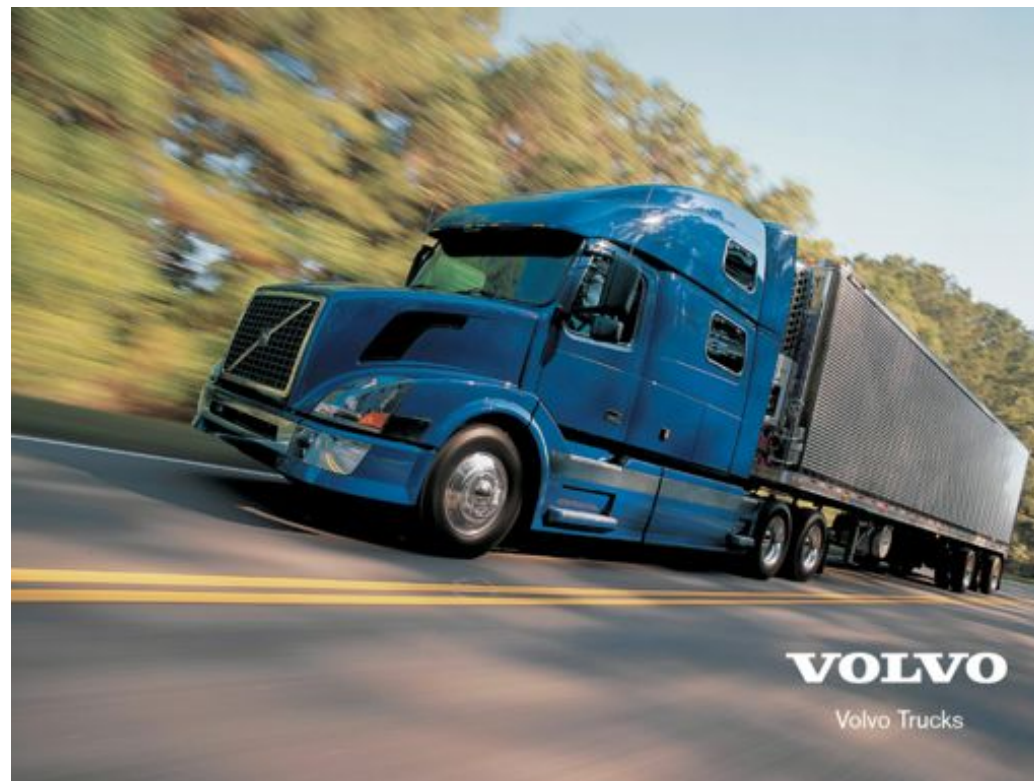
- Corrosion Engineers

- Corrosion Engineers in every state
- Co-ordination with OE for complete FEEDBACK LOOP
- Example: Volvo Buses - Support in Chennai, Bangalore, Ahmedabad)
- Example: Volvo Power Train (Support in Pune, Karnataka, New Delhi & Indore)
- Example: Yamaha (Support in Bangalore, Faridabad & Noida)

+ Volvo Power Train

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- India Wide Vendors have been recommended to use RUST-X solutions for exports.



+ Maruti Suzuki - Exports

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- 100% of Export CKD & SKD packaging for Suzuki Corporation Thailand, Indonesia & Malaysia by RUST-X
- Products – VCI packaging & RP Oils
- Recommended oil 135 C – MSZ for car white bodies to vendors



+ Maruti Suzuki – CKD/SKD



RUST-X 40
1 Micron dry to touch
spray
Dry Protection in VCI for
upto 1-2 years.

+ Volvo Eicher

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- Recommended Rust Preventive Source for VECV Vendors
 - Supply to all major vendors of VECV nation wide



+ CLAAS IPO

- Suppliers to CLAAS & ITS VENDORS for over 10 years now
- VCI Oils & VCI Packaging



+ Engine Packaging For CATERPILLAR



+ New Holland - Exports

- Rust Preventive Oil – 135 Series was helpful in eradicating rust in exports
- VCI packaging for CKD & SKD



+ Simpsons Engines

- VCI packaging for Simpsons Engines



+ Sonalika International Tractors

- Engine Packaging
- CKD Packaging
- SKD Packaging
- Generator Packaging



+ Mahindra ITEC

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- VCI Packaging to all ITEC Vendors all over INDIA – 9 years



+ Honda

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- 100% of Honda Motorcycles in 3 Plants
 - Navrangpura – CBU & CKD
 - Manesar - CKD
 - Tapukera – CBU



+ Suzuki

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- 100% of Suzuki CKD Export Packaging



+ Yamaha

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- VCI packaging for domestic Spares
- VCI packaging for Exports
- VCI Rust Preventive Oils



■ Recommended Rust Preventives to Bajaj Vendors – 10 years

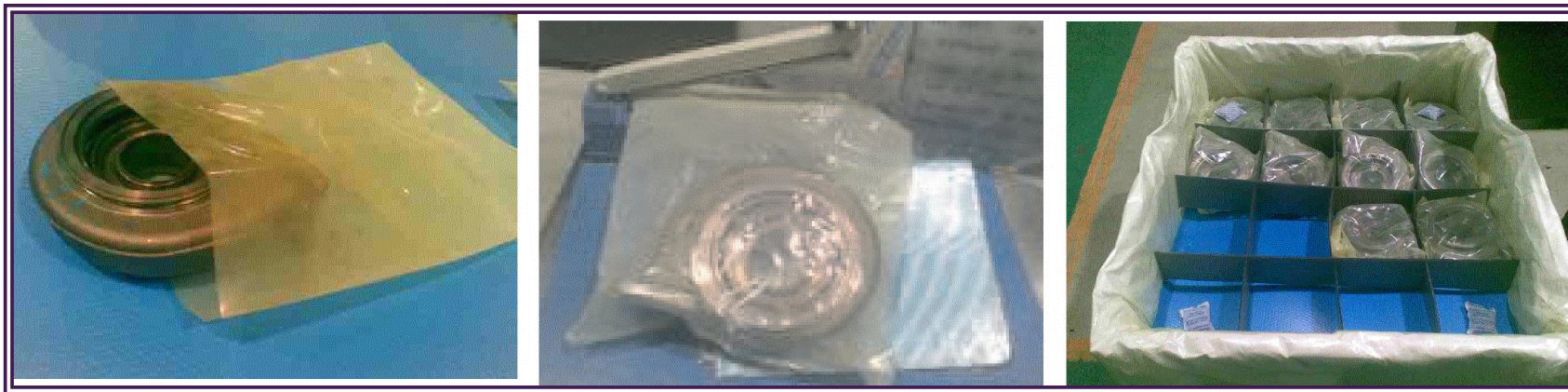
- Yeshree
- Badve
- Metalman
- Endurance
- Gabriel



+ Mahindra Hinoday

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- Reduced Corrosion from 8% p.a. to 0% p.a since 2007 and replaced competitors such as Suprabha & Harita based on quality advantage
- Supply – Cleaning Agent , VCI Rust Preventive Oil, VCI Packaging



+ SKF Test Report

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2013-01-25 page 1 of 2	Investigation report Nr. C5803/12	SKF Werkstofftechnik
Required by:	Rahul Kulkarni	
Sample:	Rust-X 145A-EX (Rust-X 135 Series Grade 400 A-Ex rust preventive oil)	

Humidity Climate Chamber Test with Rust-X 145A-EX

Investigation: humidity climate chamber test acc. DIN EN ISO 6270-2 AHT

Both five rings and rollers made of bearing steel are thoroughly cleaned and dipped in the preservative with a following drip off time of one hour. The preserved components are exposed to the climate chamber for at least 30 cycles. One test cycle of 24 hours covers 8 hours exposure time at 40 °C (around 100 % rH with condensation) and following 16 h cooling time at room temperature. The test is failed if at least 40 % of the components show a corrosion degree of 2 or higher.

Classification of corrosion degrees:

- 0 = no corrosion
- 1 = starting corrosion (max. 3 dots up to 1 mm diameter)
- 2 = obvious corrosion (up to 5 % of total surface)
- 3 = strong corrosion (more than 5 % of total surface)

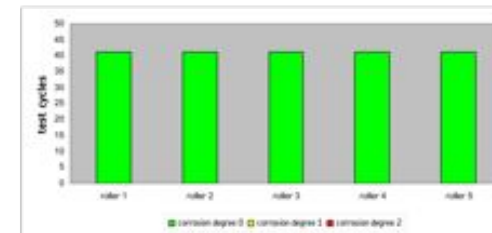
Written by: C. Haag, STW 4

Copies to: SKF India, SKF France

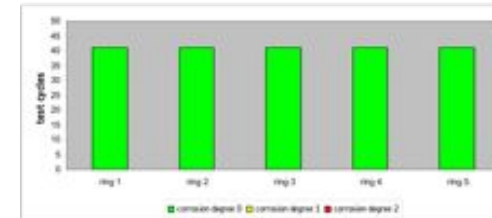
2013-01-25 page 2 of 2	Investigation report Nr. C5803/12	SKF Werkstofftechnik
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Result:

Preserved rollers:



Preserved rings:



Conclusion:

The preserved components reached more than 40 test cycles without any corrosion. The tested preservative Rust-X 145A-EX can therefore be classified as preservation class A according to the quality standard ISO 2409-1e.

Recommendations:

It is recommended to test also the film thickness of the preservation oil to make sure that an adequate film is left on the bearing surfaces. This would be in accordance to SAP D30.

+ VOLVO – VEPT Pithampur



Out of 4 suppliers Evaluated over 2 years period RUST-X performed best and was selected based on Quality Performance & not Price

+ Auto Cleaning & RP

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DRY Packaging of Engines for Volvo



- Engine Sprayed with RUST-X 40
- Wrapped in Non Woven VCI Sheet
- Shower Cap type Covers placed on Crank Shaft Ends



DRY Packaging of Engines for Volvo



- VCI Bag is placed and the Engine is lowered into VCI Bag

+ Volvo Engines



- Wrapped Engine is moved to Conditioning Room set at
- 23 °C
- 20% RH
- 2 hrs

+ Packaging Heat Sealing

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- Heat Seal the Pallet in order to achieve an airtight packaging worthy of transportation anywhere around the world without allowing any influx of humidity.



+ RUST-X For VOLVO Engines

Emitters + Desiccants & Heat Sealing



+ Placing Raincoat Cover on Pallet



+ VOLVO FIRST ENGINE PACKED





Engine Packaging Expectations

- Single Engine Packaigng
- Corrosion Prevention for minimum 2 years
- Corrosion Engineer for Certification at SAME for Every Engine Packed.
- Overseas Support of RUST-X
- Minimal Pack Time
- Minimal Packaging
- 1 Stop Solution
- Supply Management
- Damage Protection during Sea Transportation
- GLOBAL RECYCLING OF PALLETS

+ Packaging Steps

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Cleaning with RUST-X 40

Rust Prevention with 145 A -Ex

Placing Bottom Sheet for 2 engines on
Pallet Base

Covering Single Engine with VCI bag
while hung on hook

Placing and mounting VCI wrapped
Engine on Pallet

Placing Dehumidifier & Emitter Pouches

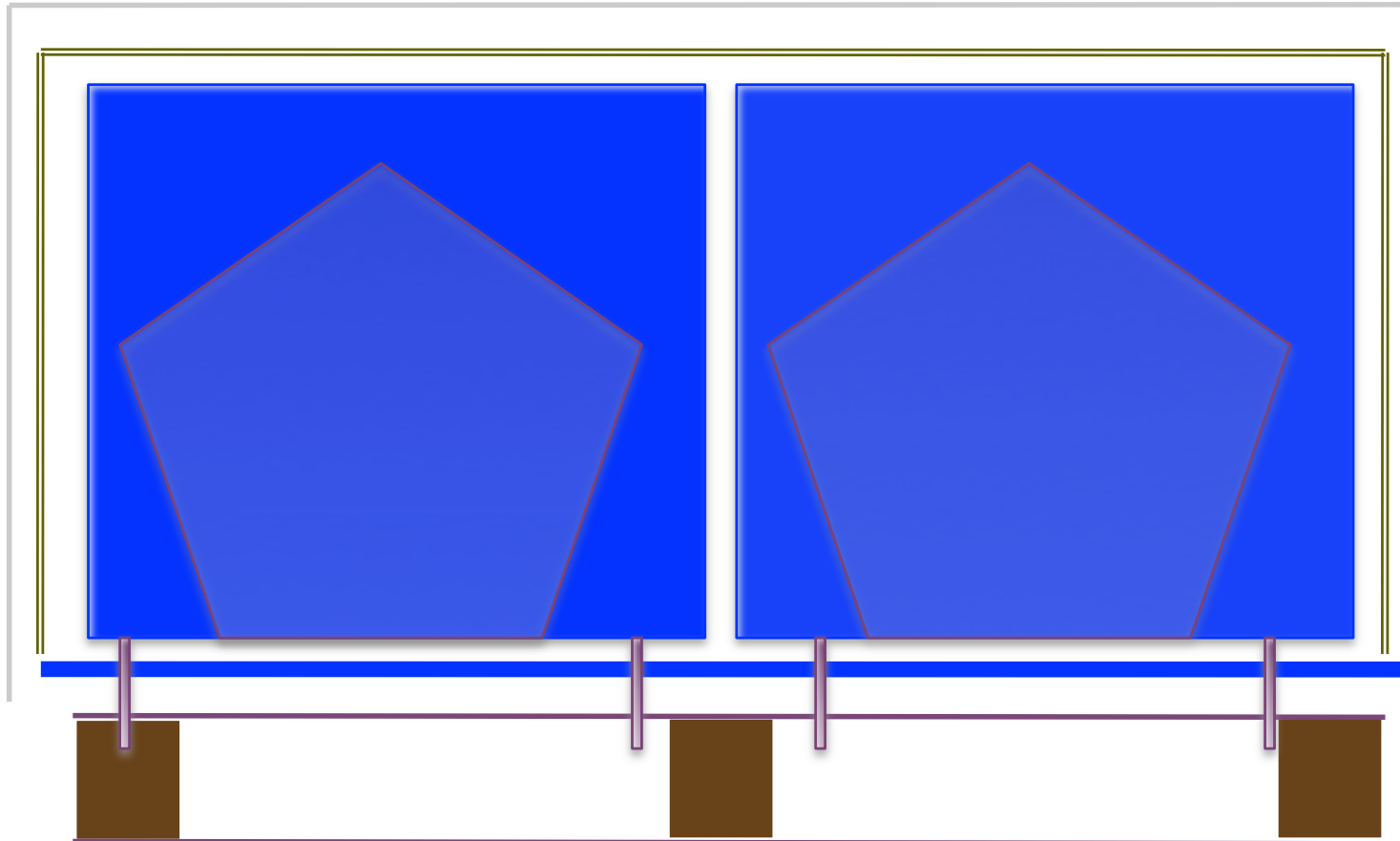
Heat Sealing with a heat sealer

Packing the Pallet with Corrugated Box

Covering With Rain Cover & Strapping

+ Single Engine Packaging

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+ Step 1

Cleaning the Engine with RUST-X 40 where ever required

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+ Step 2

Spray Oiling with 145 A - Ex

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+ Step 3

Placement of Bottom Sheet on the Pallet
(1400X1100mm @150 microns)

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Step 4

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Inserting the mounting bolts through the bottom sheet





Step 4

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Fixing the Metal barrier Bag with Transparent bottom (1000X700X1500 mm) and inserting mounting bolts



+ Step 5

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Placing the engine within the Metal Barrier Bag



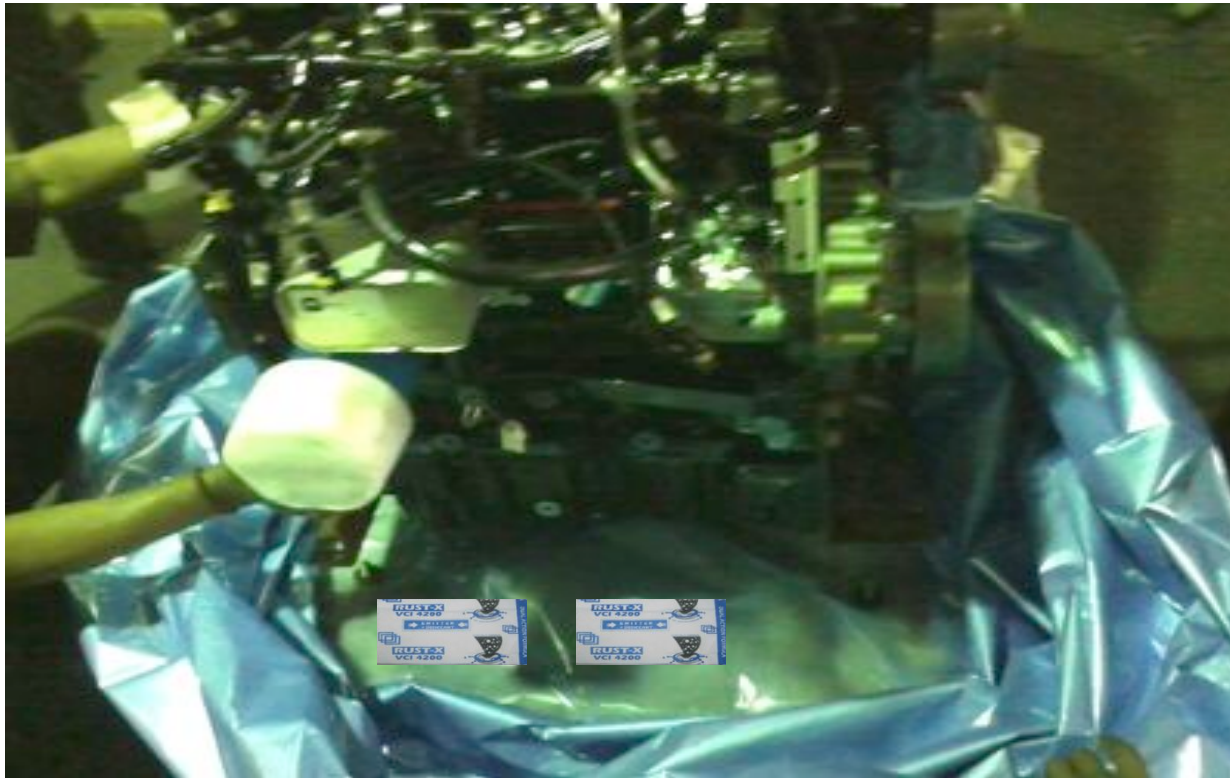
+ Step 6

Placing VCI Emitter & Dehumidifier Pouches

VCI 19000 = 10 pouches (20 gm)

VCI 4200 = 10 pouches (20 gm)

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+ Step 7

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Heat Sealing of the Metal Barrier Bag from top

- The Single Engine packed on the pallet is then heat sealed using tong type sealer to create an air tight and inert atmosphere
- Same steps 1-7 are repeated for the second Engine



+ Step 8

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Placing Styrofoam Blocks in between Engines

- Styrofoam Blocks may be placed between Engines to avoid physical damage



+ Step 9

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Covering the packed Engines with Corrugated Box



+ Step 10

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Covering the box and putting on a rain coat cover



+ Customer Expectations

- Single Packaging of Engine
- 2 Year Corrosion Prevention
- Minimal Packaging time
- Future: Global Recycling of pallets

+ Future Scope

- Automated rust preventive spraying to be developed
- PET strapping with Automatic Strapping Tool
- Packaging & Conditioning of Engines in Controlled Environment Temperature 23 C and Humidity 20%
- Returnable Packaging
- Moulded Pallets for easy fitment of Engine

+ OE Expectations



- Corrosion Prevention
- Corrosion Engineer for Certification
- Overseas Support
 - Italy Distributor Partner
 - France – RUST-X Manufacturing Setup
- Minimal Pack Time
- Dry to touch Packaging of Components
- Minimal Packaging
- Recyclability
- 1 Stop Solution
- Supply Management
- Damage Protection during Sea Transportation

+ TEAM RUST-X



- RUST-X Corrosion Engineers are present in all major industrial areas and cities.
- We undertake training and product recommendation at vendors of OE's.
- Our Corrosion Engineers also conduct regular audits and trainings at the OE's Vendors.

+ Reach Compliant – European Union Compliance

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+ ROHS Compliant

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VCI Paper



VCI Plastic



VCI Emitters



+ VCI Patent and VCI Trademark of RustX

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+ IIT Bombay and CIRT certifies RustX Products

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TUV Certificate for RustX

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Thank
YOU

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