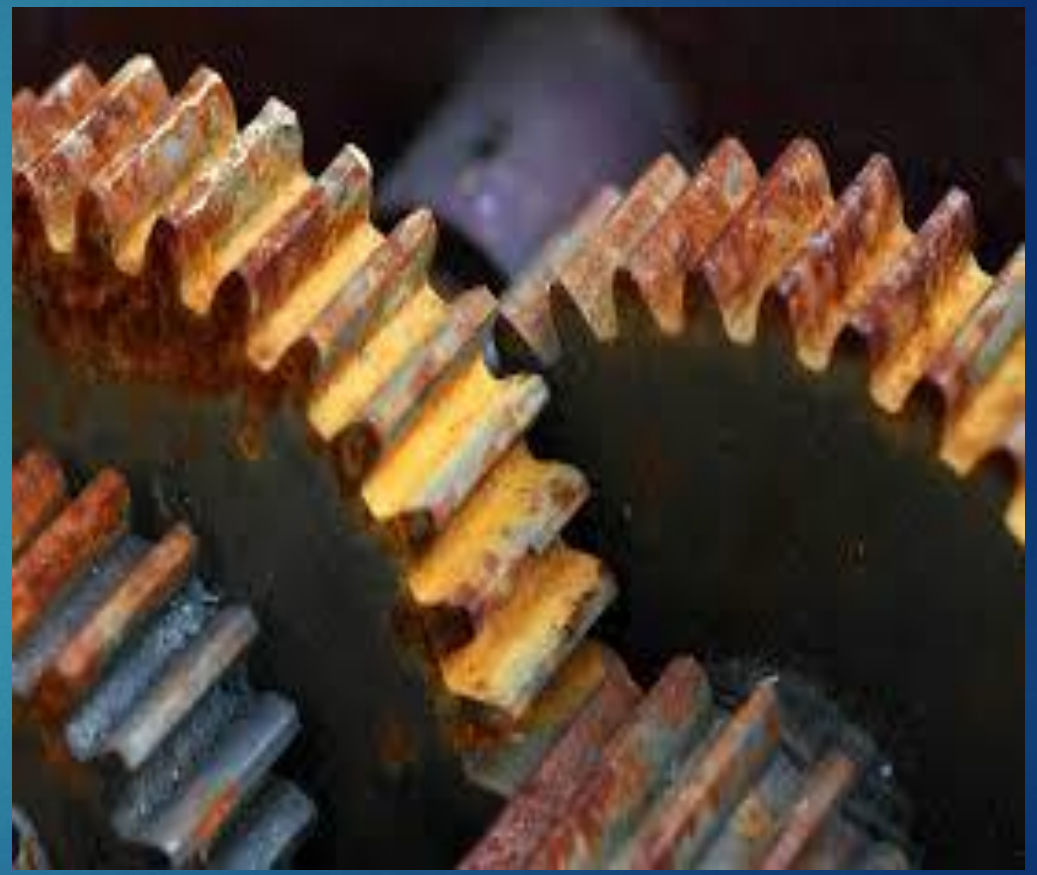
RUST-X

Monsoon Precautions for Corrosion Protection

CORROSION Sources

- CORROSION IN RAW MATERIALS/INCOMING
- POOR STORAGE
- CORROSION AFTER MACHINING
- CORROSION AFTER LEAK TESTING
- CORROSION DUE TO WATER WASHING
- POOR EXPORT PACKAGING



Inspect Incoming Parts

Inspect incoming parts, which should be corrosion free.

Apply RUST-X 136 – C

In case of issues in vendor supplies recommend 136 – C Dry type rust preventive.

For Storage & In Process
Apply 136 – C In process Rust Preventive

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Use **In Process Rust Preventive RUST-X 136 –C** to prevent corrosion during manufacturing. The product dewaters cutting oils, degreases the parts and provides up to 1 month corrosion protection on shop floor in humid conditions. The rust is initiated at this stage after machining.

Place Bins on Machining Centres

Bins containing In Process **RUST-X IP 136 C rust preventive oil should be** placed on all CNC machines where dipping of the part should be done to prevent rust development due To Stagnant cutting oils.

Metal Working Fluid Additive – RPA 4500

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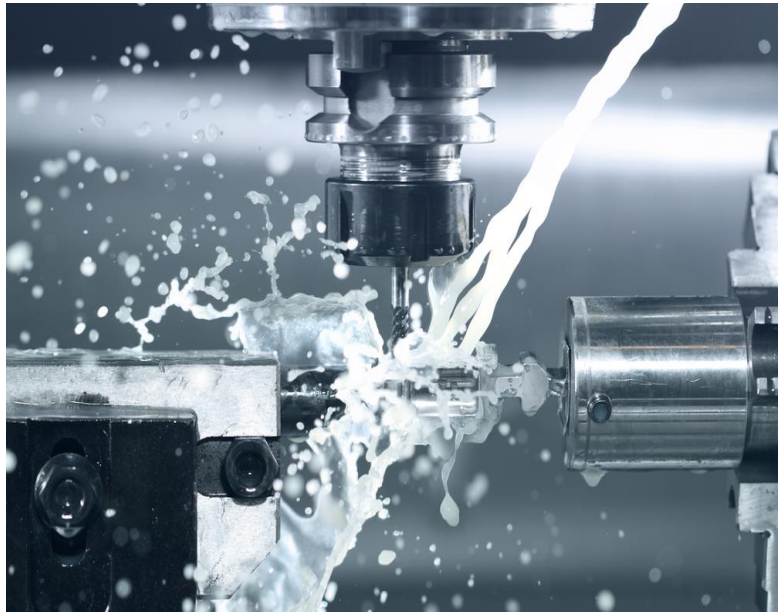
In case cutting oils are causing rust.

Use RUST-X cutting oils or add **RPA 4500 Rust Preventive additive to the cutting oil emulsion.**

This will stop rust from cutting oils and leak testing fluids



Corrosion After Vibro Finishing

USE RUST-X VIBROX

CORROSION AFTER VIBRO FINISHING

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- RUST-X VIBROX TO PREVENT CORROSION AFTER VIBRO
- VIBROX ADDITION RATE @ 2-5% IN WATER

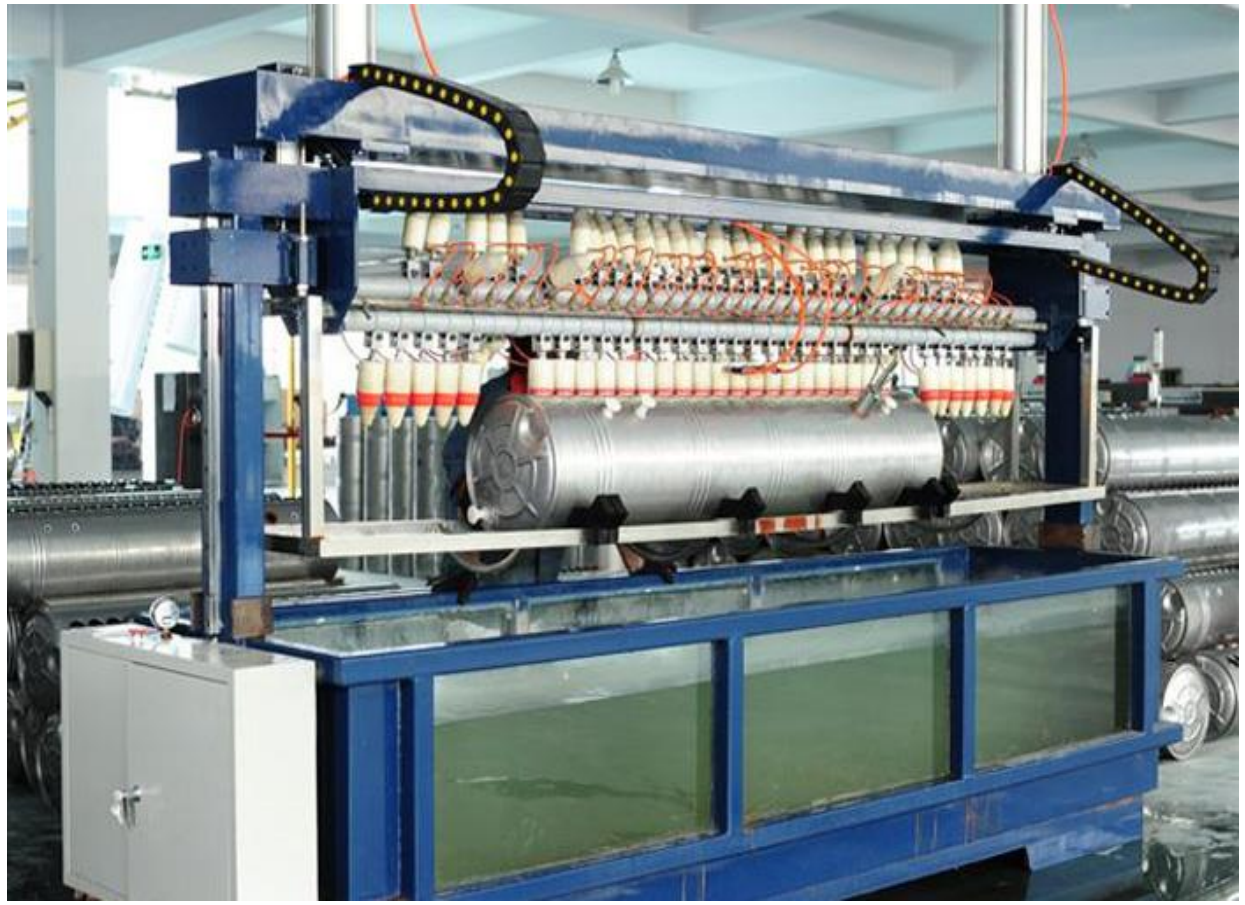
LEAK TESTING

Corrosion After Leak Testing

Causes

- Water remains in cavities
- Corrosion starts after a few minutes

If rust is occurring due to **leak testing**, **RPA 4500 can be added @ 2-5%** and this corrosion issue can be resolved. Add RPA 4500 to the induction hardening polymer solution @ 2-3%



In Process Parts Packaging & Protection

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The parts during processing should be **covered properly to prevent dust** settling on the components. Dust particles are hygroscopic and can cause spots on the components.

Corrosion After Grinding & Water washing

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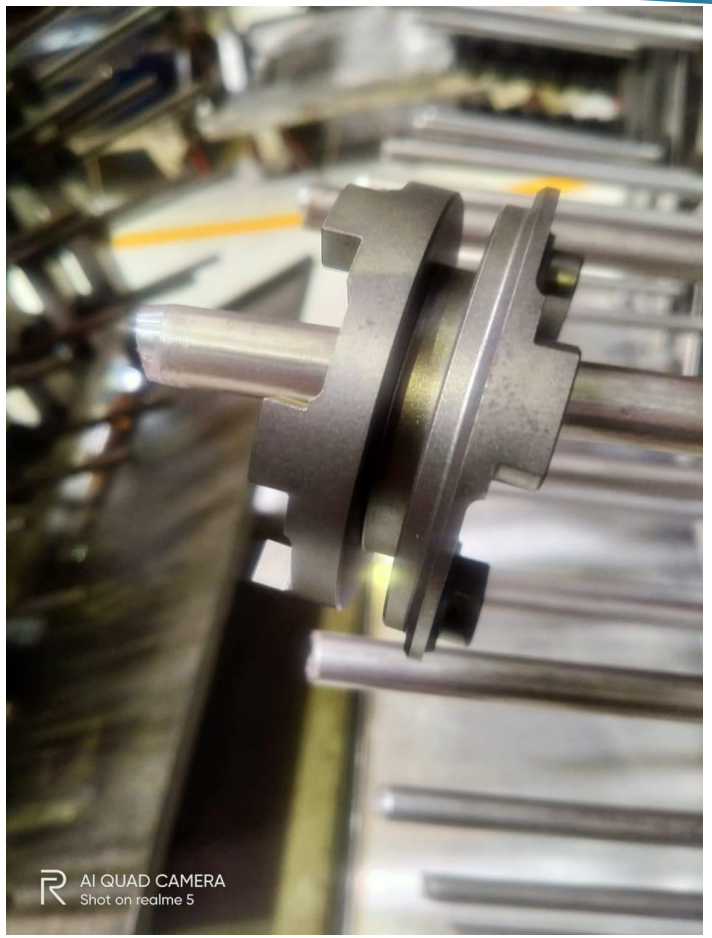
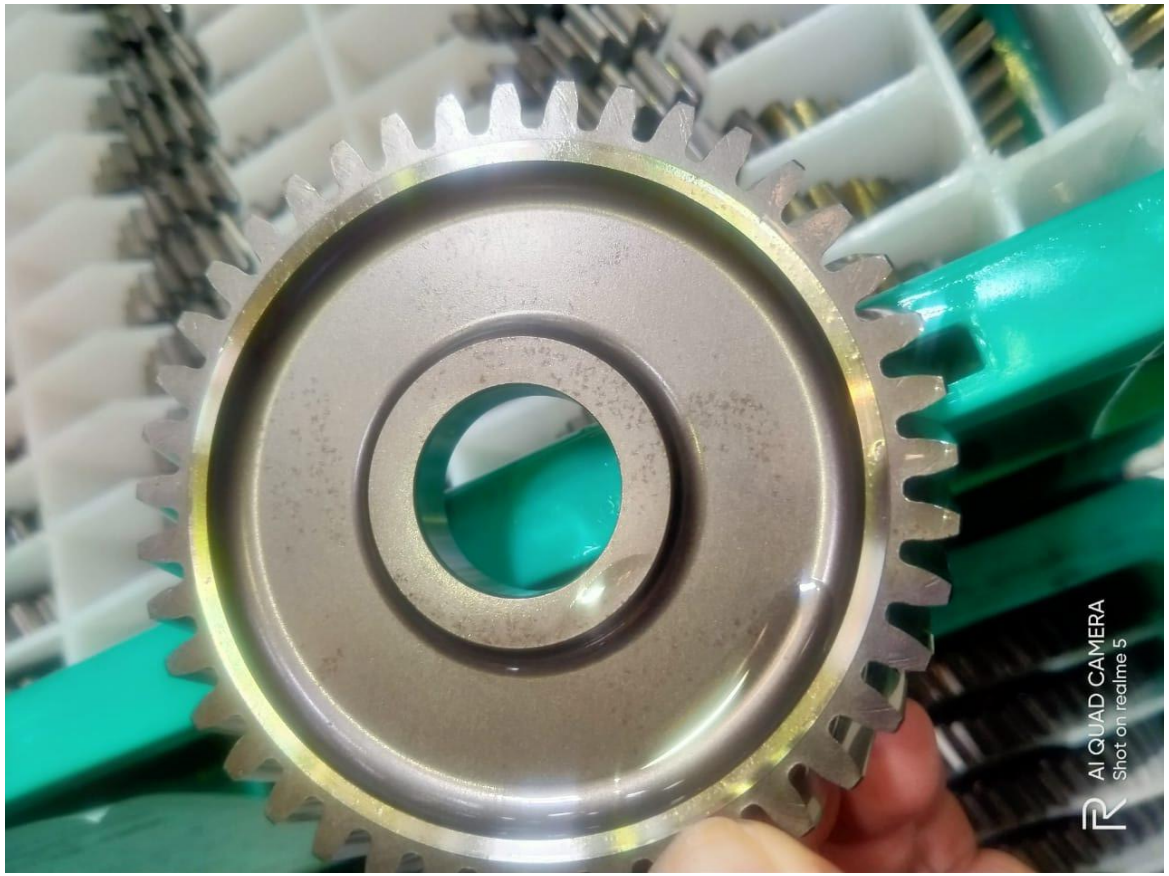


Corrosion After Grinding Machining & Water washing

RUST-X



Solvent based Cleaning Media Solution

Before packaging, dip the parts in a **Cleaning Media Solution RUST-X** CL005 which is a solvent based cleaning media. Which dewaters and cleans the part

Water based cleaning medias are not recommended as they tend to stay within the voids, threads and cavities of the component and cause rust after packaging.

Export Grade Rust Preventives

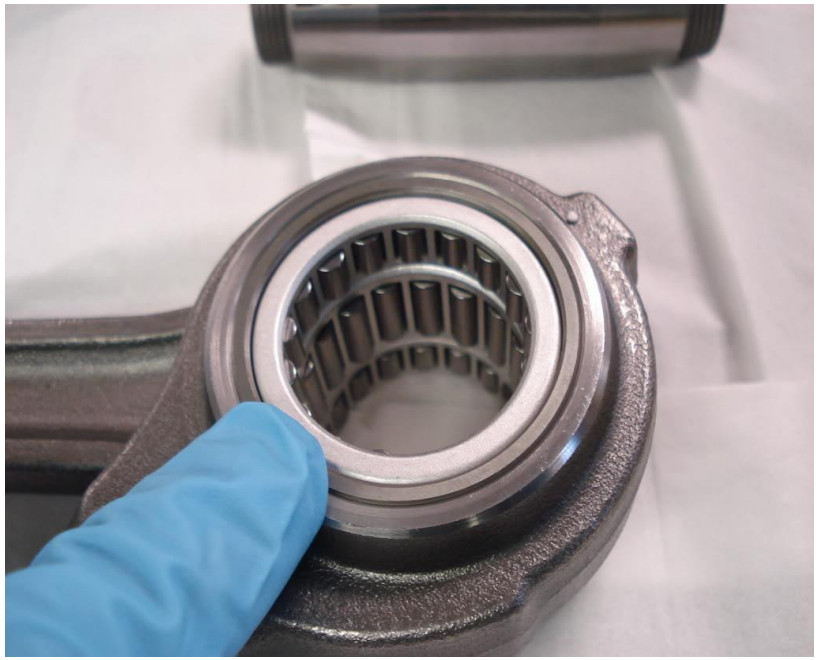
Apply **RUST-X Rust Preventives after the cleaning** operation. The parts should be completely dipped and submerged in the Rust Preventive Tank to cover all areas of the components.

Parts to be fully submerged in RP

A number of times during corrosion audits it is found that the **level of the rust preventive in the tank is below the height of the component** and the complete part does not get submerged in the tank. Therefore it is essential that the level of rust preventive oil in the tank to be monitored and refilled to have the complete part/parts submerged in the tank.

Use Gloves for handling oily parts & for inspection

After application of the rust preventive oil, the parts should be handled only once and that too preferably with **gloves.**



USE OF FAKE VCI CAN CAUSE CORROSION

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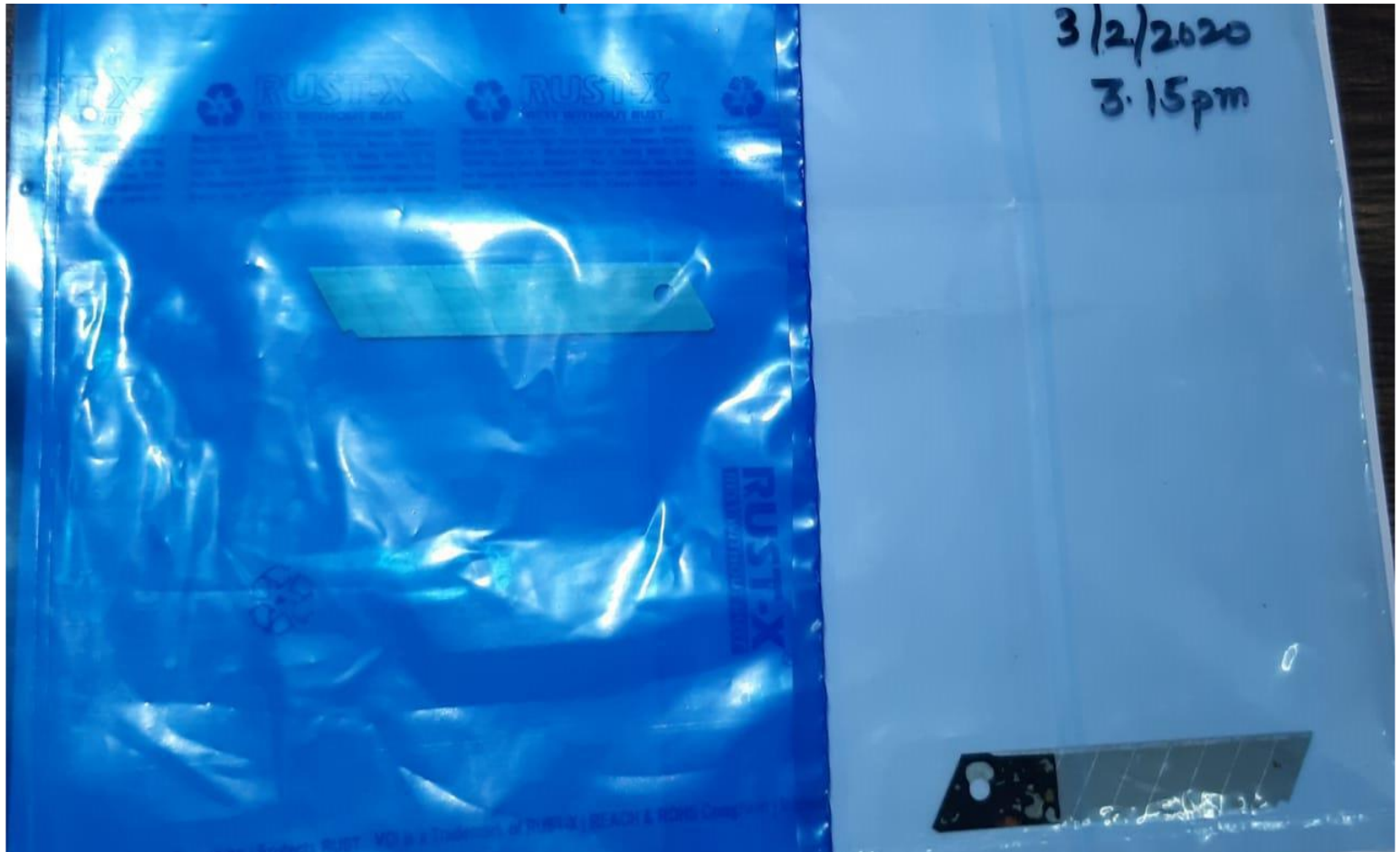
- NOT ALL PLASTICS ARE TRULY VCI
- MOST OF PLASTIC COMPANIES CALLING THEIR BLUE AND YELLOW PLASTICS AS VCI WITH
  - NO KNOWLEDGE OF CORROSION
  - NO KNOWLEDGE OF CHEMICALS
  - NO KNOWLEDGE OF HOW VCI WORKS

AND CAUSE HUGE LOSSES TO CUSTOMERS

FAKE VCI CHECKED WITH WET RAZOR BLADE TEST OR VIA TEST



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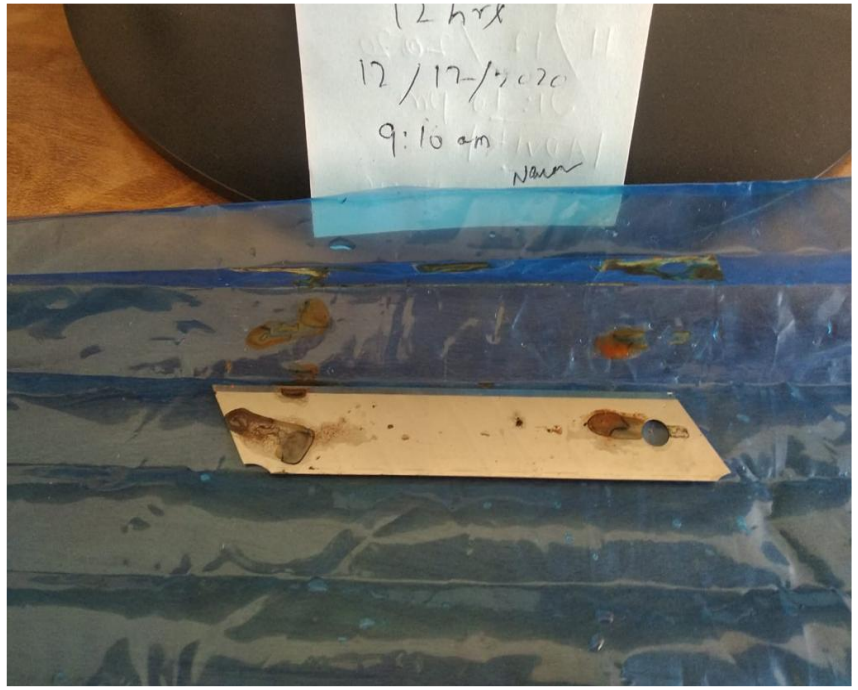
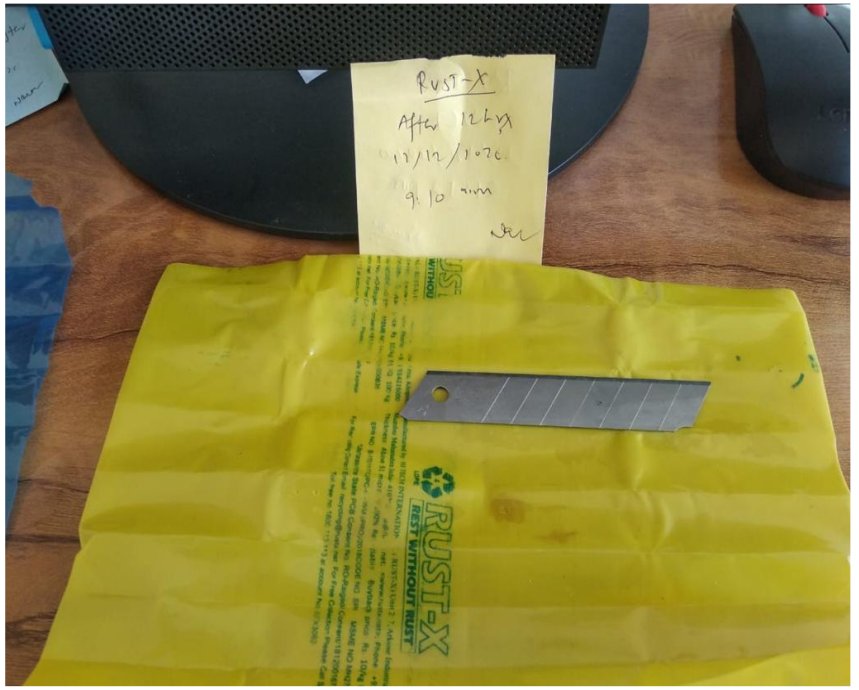


Fake VCI failed in 24 hours



RUST-X REAL VCI no rust in 24 hours

FAKE VCI SAMPLES TESTED AT AN AMERICAN CUSTOMER IN INDIA

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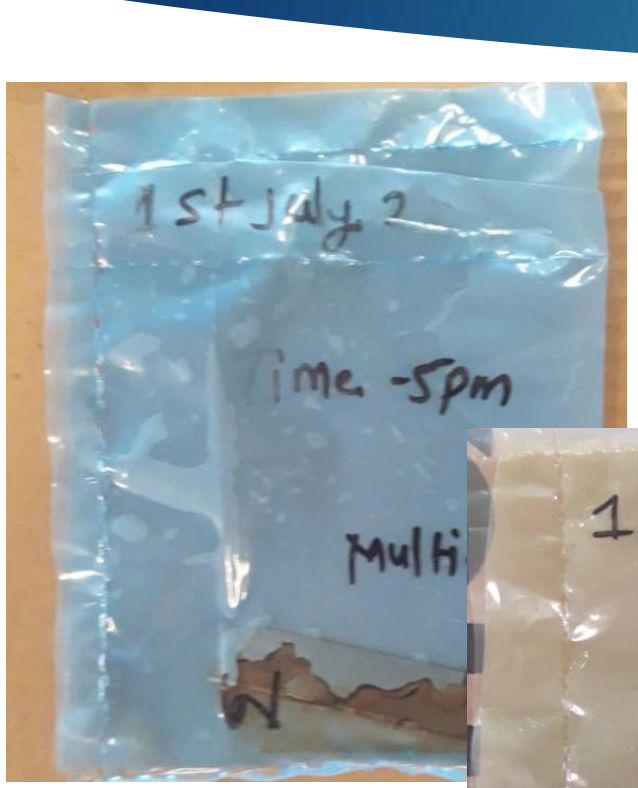

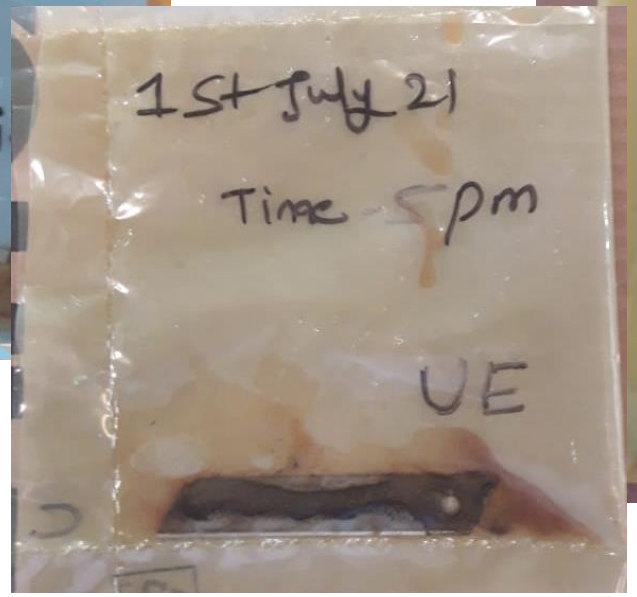

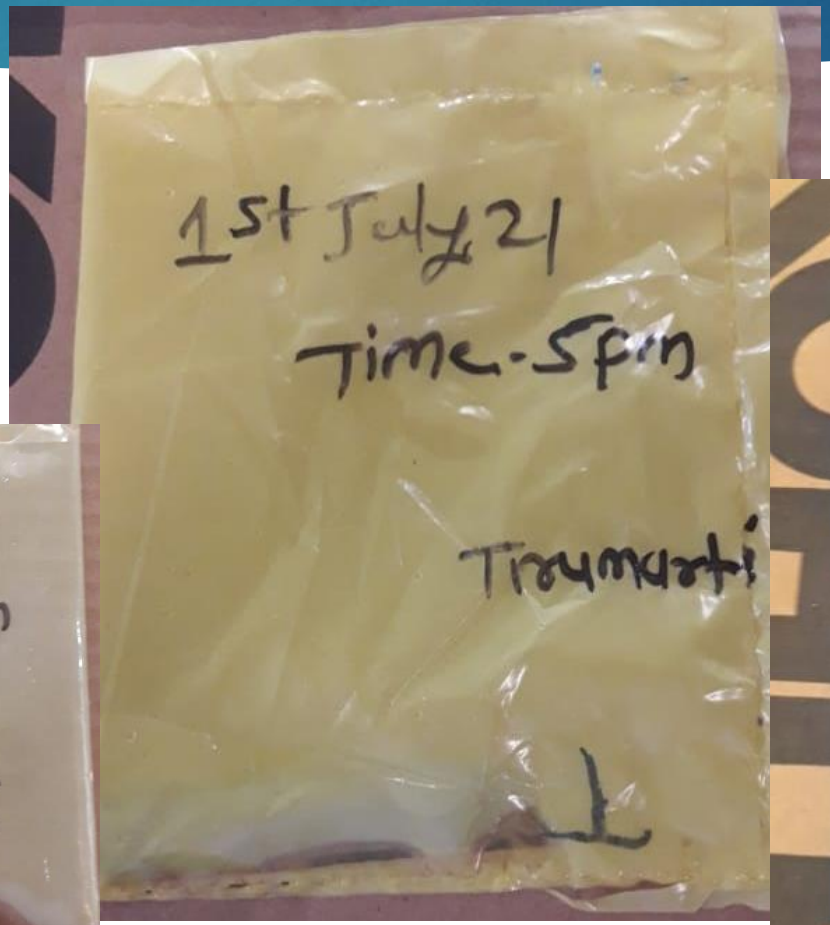

Use 3D Rain Cover

The Pallet after packaging should be covered with a **3D Rain Cover to** prevent any rain seepage through the top of the pallet during loading/unloading or while movement at sea port or airport.

Use Tong Type Heat Sealer

The 3 D Pallet Liner should also be **heat sealed with a Tong Type Heat Sealer to create an inert air tight atmosphere which even prevents** breathing of the packaging and hence inflow/outflow of humidity.

VCI Packaging & Heat Sealing

These components after application of RP oil should then be **packed in VCI bags, which should be heat-sealed. The heat sealing creates** and inert atmosphere within the bag and does not allow VCI functional chemicals to evaporate out of the packaging making the packaging and environment inhibiting for rust.

Use Emitters & Dehumidifiers

VCI Dehumidifiers and Emitter Pouches should be placed within the 3-D Pallet liner to treat and absorb the Humidity during packaging.

RAIN Oil Barrels in Uncovered area

Do not keep **oil barrels in uncovered areas as Accumulated** rain on the top of the barrel can seep through the cap and adulterate the oils with water

which can then cause corrosion instead of preventing it.

Prevent contact of Corrugations with Metallic articles

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Prevent the **Contact of Corrugations or Wooden Separators** with metallic articles. The corrugations house a lot of humidity, are acidic and also absorb oil from the components. This results in corrosion on the areas in contact with the corrugations

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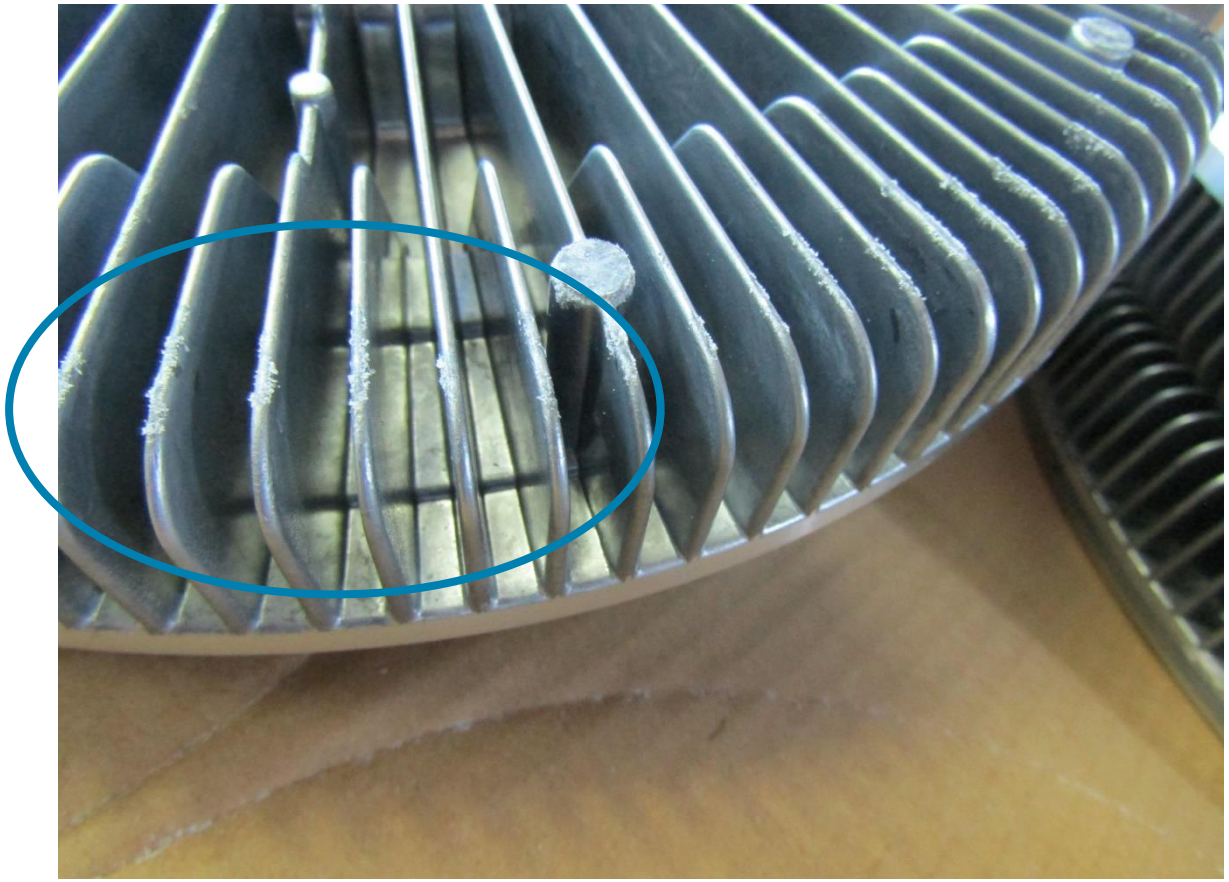

Cover Corrugations with VCI Film before placing parts

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INVISIBLE Rust Preventive for Aluminum

In case the parts are made of **aluminum**, **use RUST-X CL002** AL or CL005 AL to passivate the parts and prevent from white rust for over 2 years in packed condition.

INFORM YOUR SECURITY GATE to check Tarpaulin

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When shipping through **trucks, ensure they are covered with** Tarpaulins. The security officers at the gate should be informed to check tarpaulin covers on the goods.

Don’t Just Stretch Wrap!!!

When sending LCL consignments, cover each pallet

First with a rain cover
and then stretch wrap.

A normal shower test on the pallet will confirm if there is any seepage of water into the pallet.

Only Stretch Wrap allows water entry but with rain coat cover no water entry.

Check your shipping containers

Check the **shipping containers for door seal leakages**, **holes** or air ducts within the container or breakages, which should be prevented.

Use Zorb-It Container Poles

Avoid Container Rain and USE ZORB-IT

ZORB-IT To stop container rain

Hang Zorb-it Poles to absorb moisture.

This will lower dew point and prevent condensation

www.zorbitusa.com

Use Neutrasafe Rust Remover

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Rusty Parts should be cleaned with **Neutrasafe rust remover.** Do not use Cheap Acid Based Rust Removers as they tend to **re-rust** during storage.

Corrosion Cases

CAUSE ANALYSIS AND CORRECTIVE ACTIONS

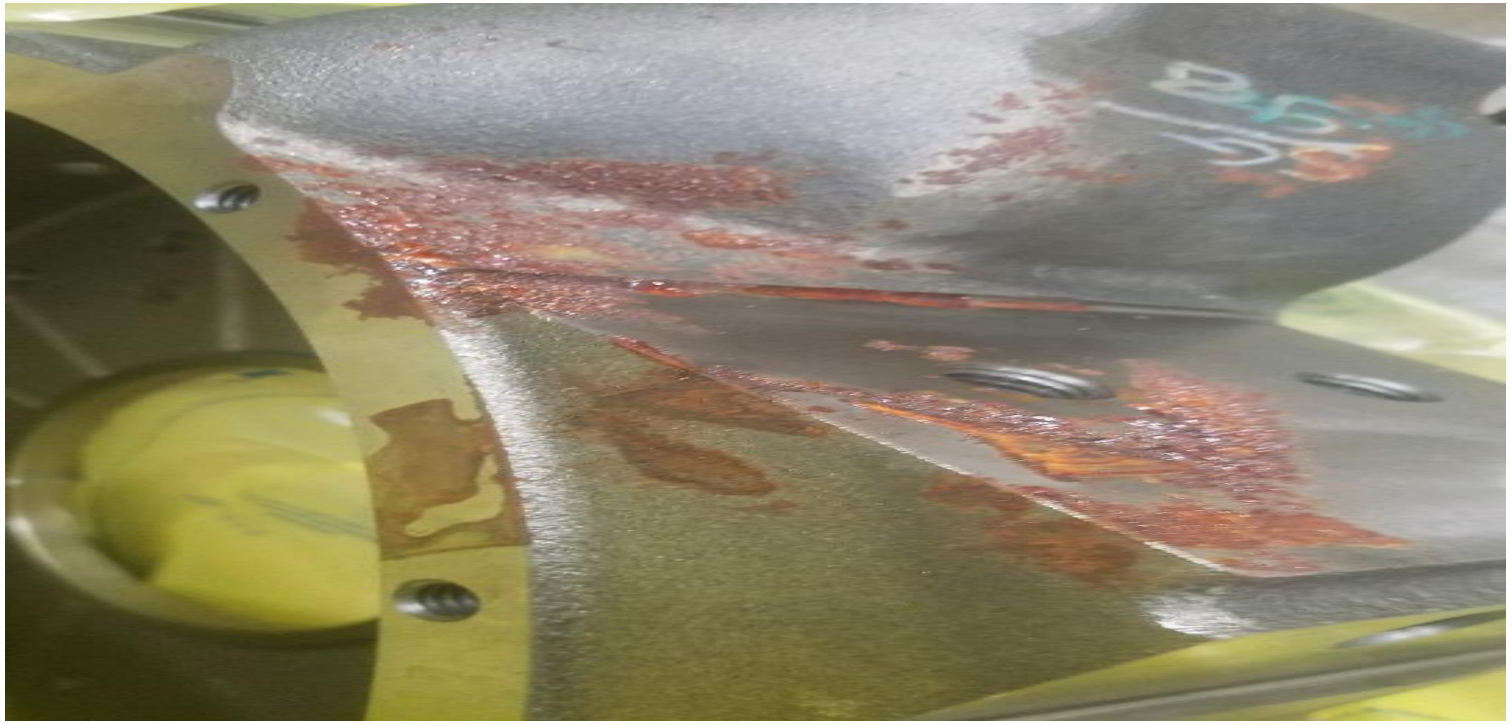
Contact with Wood due to tearing

Corrective Action:

Change to HDPE 3 D VCI Bag

Placement of PP Corrugations inside the box to avoid contact with wood in case of bag tearing

Water Entry in LCL Shipment



- Red Rust confirms high amount of water entry and not just moisture
- Conisgnment was LCL
- Exposed to Rain Fall during shipment
- Checked by Customs @ JNPT

- CORRECTIVE ACTION
  - Avoid LCL
  - Seal 3 D Bags
  - Use Rain Coat Bag on the Boxes

Corrosion From Corrugation & Poor Packaging

- Use Atleast 50 micron VCI Bags or more if sharp parts
- Corrugation/paper/ wood have naturally retained moisture from 6-15%
- Avoid parts getting in contact with Corrugations which absorb oil & transfer moisture

Corrosion During Manufacturing

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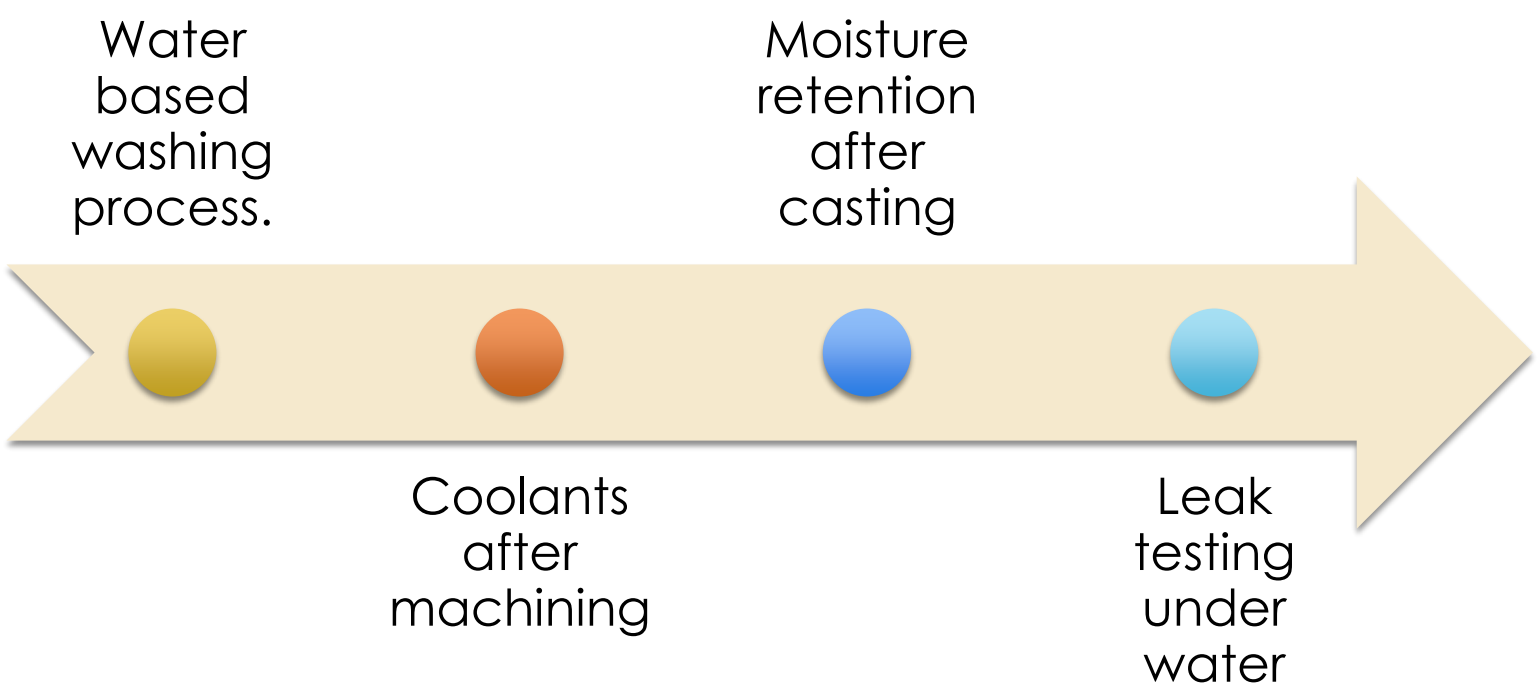

Corrosion During Manufacturing

Corrosion Due to Salts in Water

Corrosion After Machining

- Use RUST-X Aquaflush for domestic parts washing
- USE RUST-X CL 005 solvent based cleaner for Export parts to avoid salt or water remnants

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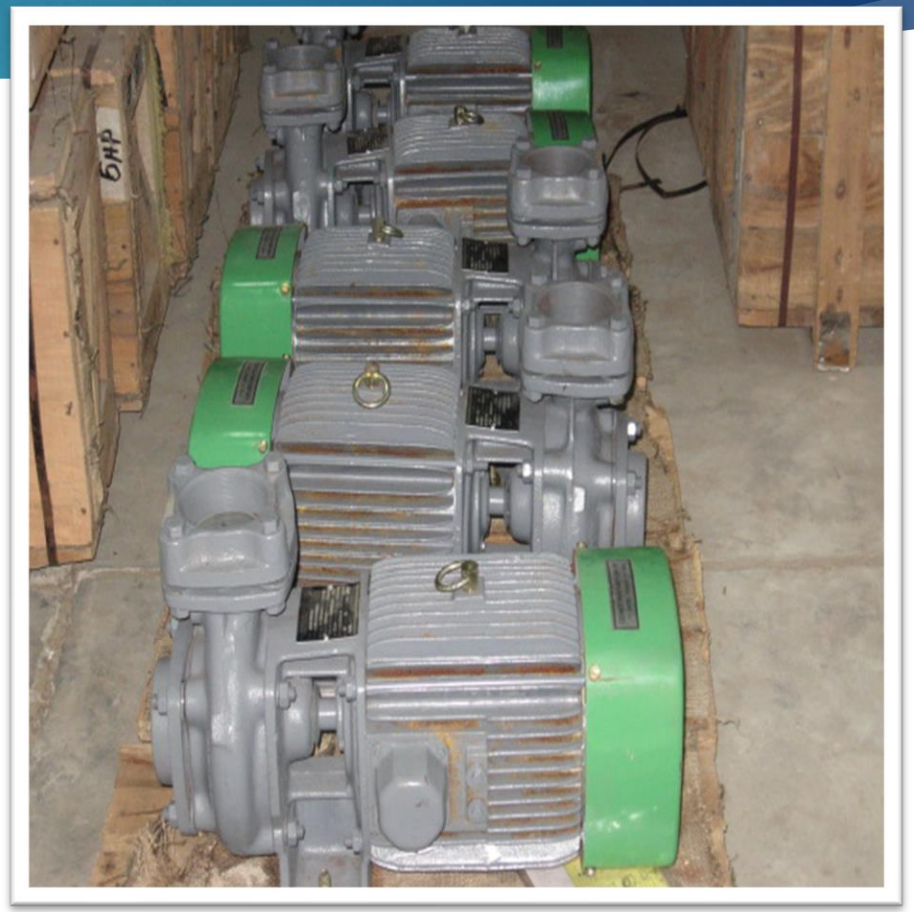
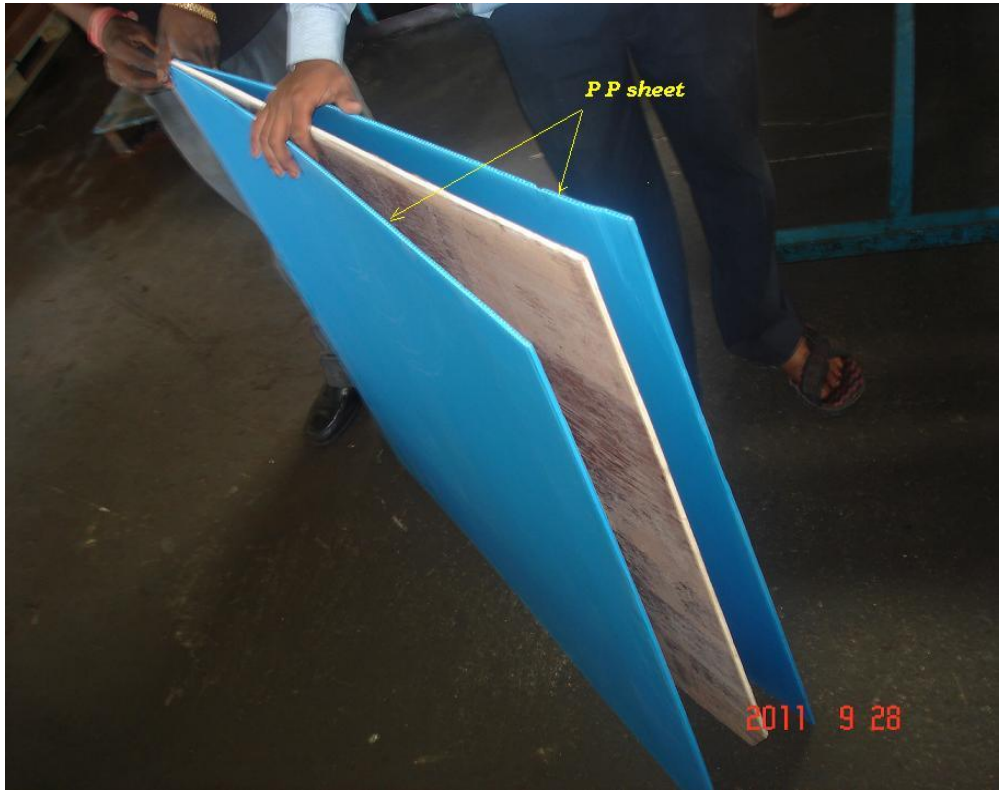
These were painted on rust!!

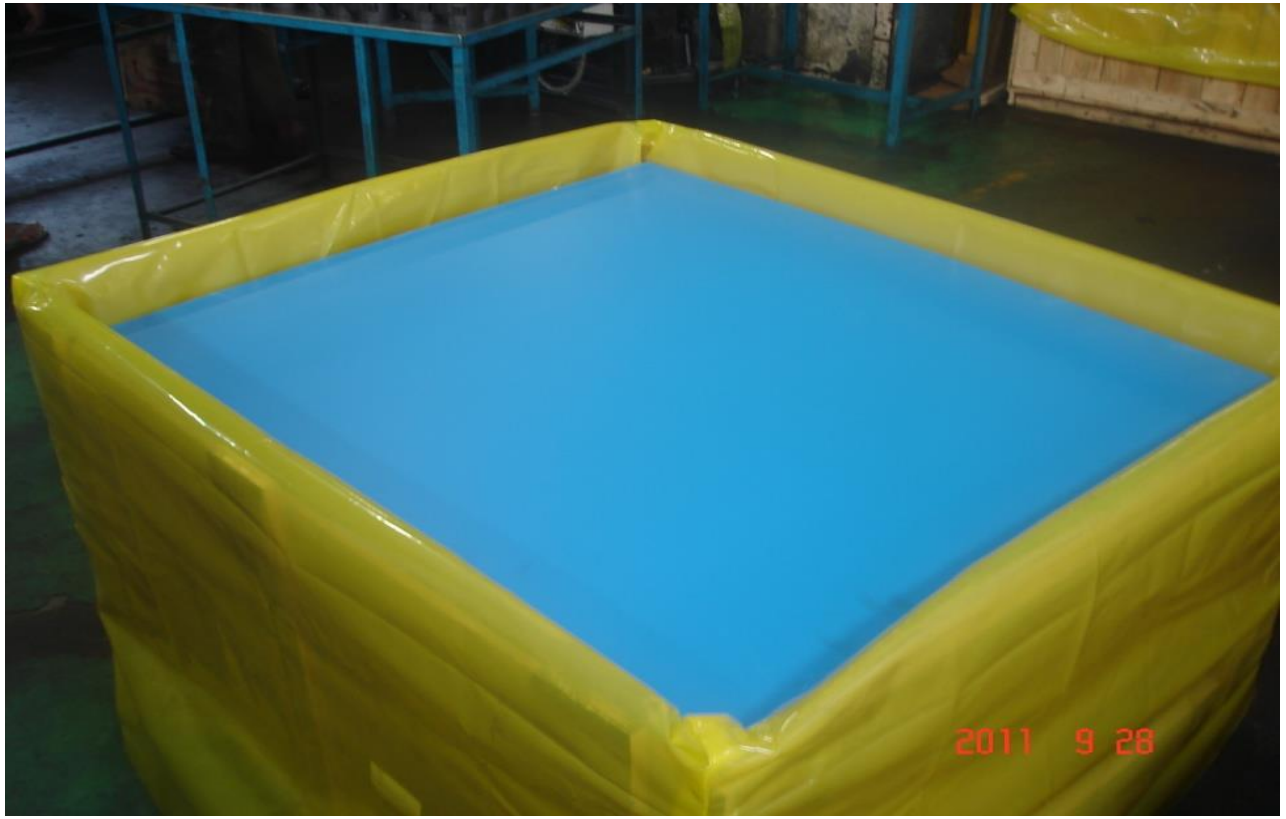


Corrosion From Corrugations

- Use the right thickness of the bag
- Avoid Paper corrugations

Corrective Action – More robust packaging





Corrective Action – Heat Sealing

Corrosion at Weldments

- Problem : In process rusting grown out of proportion beneath the coating layer during shipment
- Corrective Action: Use 135 Super Dry for Weldments after welding

Aluminum Components (White rust)

Corrosion Due to Hygroscopic Nature of Corrugations

Corrective Action

- USE 3D VCI Bag
- Place VCI Sheets as inter-leavings
- Avoid Contact with corrugations
- Place VCI Emitters & Desiccants

Place VCI Desiccants & Wrap air-tight

Dirty Parts Directly applied with RP and packed causing contamination on the part

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Corrective Action

- Filter Oil by having a continuous filtration system on oil tank
- Change Oil regularly with fresh oil and use discarded oil for raw castings or forgings to avoid in process corrosion development

Water in Parts

- Hollow drum retained water
- Resultant of improper washing

Corrective Action

- Use CL 005 to dewater parts
- Apply RUSTX 135 Dry for Dry to Touch small parts that are machined and packed with highest precautions like gloves, cleanliness etc. or
- Apply 135 C – Ex for large and heavy parts
- Avoid Water Washing


Get your packaging schemes
RUST-X approved!
We have a
SOLUTION
To every RUST Problem!!

RUST-X

Thanks!

REST WITHOUT RUST WITH RUST-X

Email: info@rustx.net www.rustx.net

For Products or Corrosion Audit Call: 90410 84344