

RustX – Parts Packaging



Mfg Plants: USA, Italy, France, India, China
Presence in over 40 countries globally



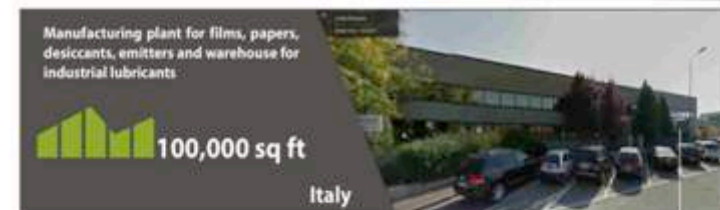
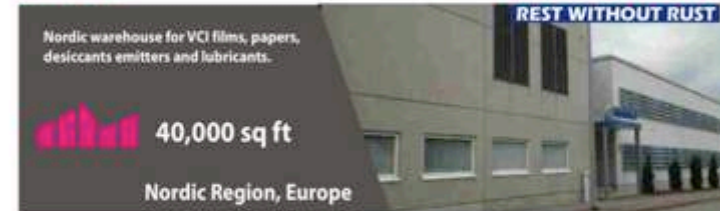
Manufacturing Plants

Manufacturing Plant



RUST-X
REST WITHOUT RUST

Warehouse/Office



Manufacturing in 4 continents

Exports to 40 countries

650+ Employees who are

- Corrosion Engineers,
- Corrosion Auditors,
- Manufacturing Staff,
- Management

Solutions



RUST-X
REST WITHOUT RUST

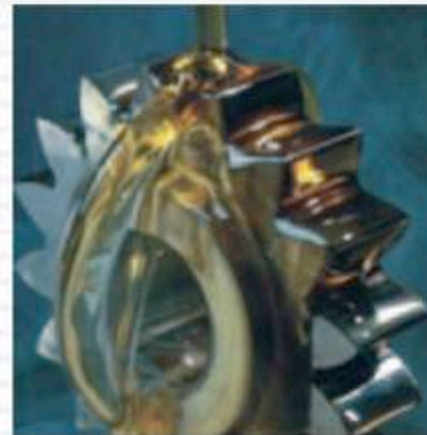
RustX provides end to end to solution to the
Auto Component Manufacturers



Metalworking



Washing



Rust Prevention



VCI Packaging

Washing



RUST-X
REST WITHOUT RUST



Metalworking

Washing

Rust Prevention

VCI Packaging

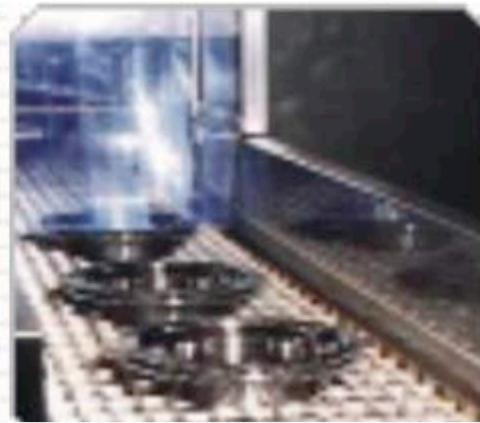
- ❑ Washing of parts using solvent or water based cleaning media
- ❑ Dipping in RP oil 135 C – Ex



VCI Technology



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REST WITHOUT RUST



Metalworking

Washing

Rust Prevention

VCI Packaging

Packaging in VCI

VCI Works By

- ☐ Evaporation & De-activation of moisture
- ☐ Multi-molecular film onto the metal
- ☐ Altering the pH
- ☐ Passivating the electron flow

Tractors



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REST WITHOUT RUST

CLAAS RENAULT – CLAAS and its VENDORS FOR OVER 10 YEARS



New Holland – Spare parts, exports of CBU, SKD, CKD



Mahindra – Supplier to 17 units in India for exports and domestic packaging and oils



SONALIKA - Spare parts, CBU, SKD, CKD, Lubricants and Washing Medias



Tafe – Simpsons – Packaging for engines and parts



Escorts – Rust Preventive Oils and Washing Medias



Trucks



RUST-X
REST WITHOUT RUST

Volvo – Supplier for parts, engines, bodies and sole vendor in many units across India



Eicher – Supplier to all major vendors for rustoils, packaging and lubricants



Navistar – Suppliers to parts manufacturers for exports from India to USA



TATA – suppliers to various divisions making parts, vendors and for exports



EICHER



RUST-X

REST WITHOUT RUST

Suzuki – All CKD and SKD exports packed and supervised



**MARUTI
SUZUKI**



RUST-X
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All CKD, SKD, CBU
packed by RustX

4 supervisors present to
monitor packaging
operation



STEP 1



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Lay the VCI bag 150 or 200 microns in each section of the pallet.

2 bags per pallet need to be placed

Roll down the bag to place the long blocks.

When not in use cover the components with the bag to avoid evaporation loss

- Bag should not be left open for more than 4-6 hours.

STEP 2



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REST WITHOUT RUST



- Wrap the blocks with VCI Non Woven Sheet
- Tape seal the edges of the sheet to restrict movement
- Cover all six sides completely for obtaining best results
- Gently place the wrapped LB inside the pallet and ensure the bag doesn't tear whilst doing so
- Also no corrugation sheet or wood should be placed inside the packing as it can increase moisture content and cause corrosion

STEP 6



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- Heat Seal the VCI Bag with a tong type heat sealer to avoid any influx of moisture and exit of VCI chemicals
- Temperature should be 90 – 100 degrees with a time of 20-30 seconds
- 1 bag of 200 microns has been provided to check the sealing
- Please ensure Teflon tape is present on the sealing machine to avoid punctures and over heating



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□ COMPLETELY PACKED ENGINE



Step 7



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- ☐ Place the raincoat bag outside the pallet
- ☐ We have changed the dimension so the bag is not lose anymore



SKF Worldwide Approval



RUST-X

REST WITHOUT RUST

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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)

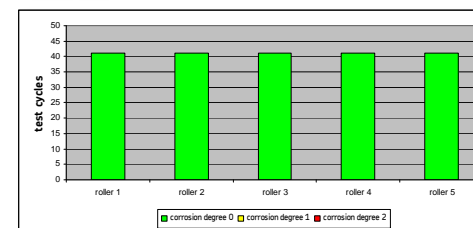
Written by: C. Haag, STW 4

Copies to: SKF India, SKF France

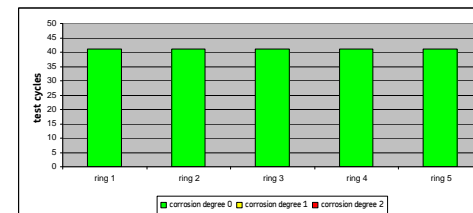
2013-01-25 page 2 of 2	Investigation report Nr. C5803/12	SKF Werkstofftechnik
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Result:

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 1062409-1e.

Recommendation:

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 S&P D30.



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VCI Anti Corrosion products
& Industrial Lubricants



PARKER

Automotive Lubricants



Moisture Control Desiccants



AQUAFLUSH

Industrial Cleaning Agents

Industries



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Technology

Dry to touch packaging solutions

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REST WITHOUT RUST



☐ SMP – VCI Technology

- ☐ Speedy Moisture Passivation Technology with Vapour Phase Corrosion Inhibition

☐ VCI Works By

- ☐ Evaporation & De-activation of moisture
- ☐ Multi-molecular film onto the metal
- ☐ Altering the pH
- ☐ Passivating the electron flow

$\text{VCI} + \text{H}_2\text{O} = \text{No Reaction with Fe}$

VCI combines with Moisture and causes no reaction to Iron

$\text{H}_2\text{O} + \text{Fe} = \text{Fe}_2\text{O}_3 \text{ (Rust)}$

Moisture combine with Fe to cause Rust

VCI Protocol



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- ☐ Closed environment with VCI Chemical for deactivation of moisture
- ☐ Sufficient chemical quantity
- ☐ No corrugation or wood in contact
- ☐ VCI alters pH Value
- ☐ VCI vapours released due to vapour phase difference

3 – Layer Plant



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REST WITHOUT RUST



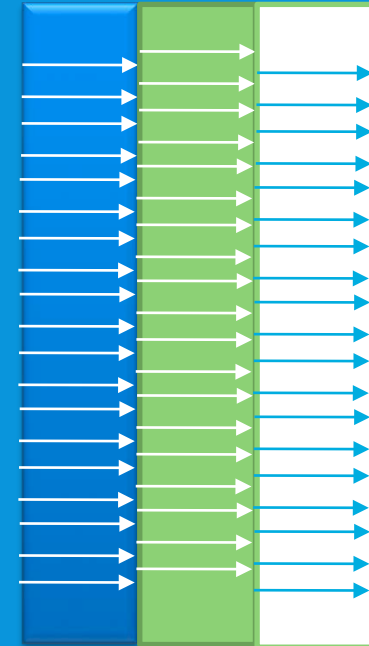
Pores



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1 layer



3 – layer Co-EX

HDPE fully permeable with only 20 micron thick continuous film
1 Layer Film permeable with low barrier properties
3 layer film pores don't line up and reduced permeability

**MARCHING
TOWARDS
CORROSION**



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WHAT' S WRONG THAT YOU ARE DOING



WOOD



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□ WOOD IN CONTACT WITH METALS



Corrugation



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Rust due to corrugation



IMPROPER OILING



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❑ RUST BEFORE PAINTING



WELDMENTS



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





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❑ ALUMINUM OXIDATION





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❑ ALUMINUM OXIDATION DUE TO CORRUGATION



NISSAN RUSTING



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❑ WATER BATH OF BRAKE DRUMS



FORD RUSTING



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REST WITHOUT RUST



RECIVING CONDITION



RECIVING CONDITION



RECIVING CONDITION



RUST OBSERVED IN SEPERATOR



RUST OBSERVED IN BRKT



RUST OBSERVED IN BRKT



RUST OBSERVED IN BRKT



RUST OBSERVED IN BRKT

CATERPILLAR



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❑ IMPROPER PACKING



Auto
Component



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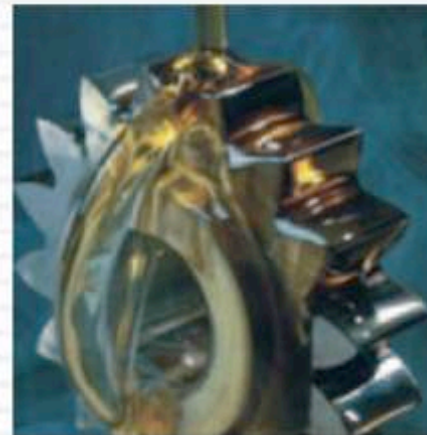
RustX provides end to end to solution to the
Auto Manufacturers



Metalworking



Washing



Rust Prevention



VCI Packaging



Vendor Packaging in Italy and India

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Vendor Supplies



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- ☐ Place VCI Bag in pallet
- ☐ Place support separators of styrofoam covered with plastic
- ☐ Place crankshafts after oiling with RustX VCI Oil
- ☐ Heat seal the bag



Axle Packaging



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- ❑ VCI bag for separators
- ❑ VCI Bag for pallet
- ❑ VCI Desiccants and Emitters



Turbine Housings



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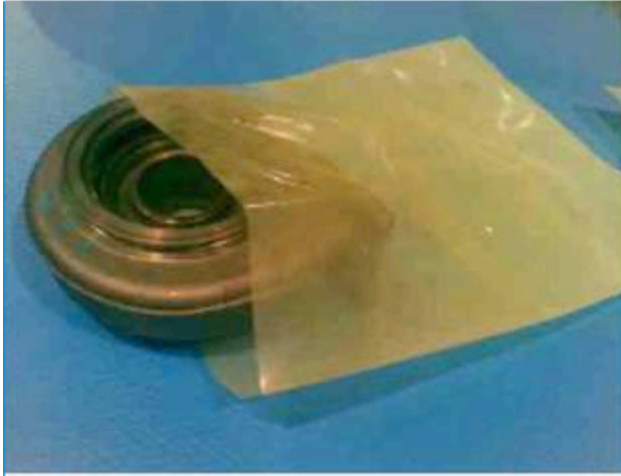
- ☐ VCI master Bag
- ☐ PP Flute separators
- ☐ VCI sheets on top of arrangement
- ☐ Desiccants and Emitters
- ☐ Heat Sealing of the bag



Individual Packaging



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- ☐ VCI bags , heat sealed
- ☐ Placed in VCI master bags
- ☐ Returnable wooden boxes

VCI Paper



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- ☐ Forgings packed in VCI Paper
- ☐ Placed in VCI Master bags
- ☐ Put in pallet

Rust Removers



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- ☐ Neutrasafe
 - ☐ Neutral rust remover
 - ☐ Non Acidic
 - ☐ Safe for eco and bio
 - ☐ Patented product
 - ☐ Converts rust to metal in 5-10 minutes
 - ☐ No mechanical action required



Overrunning Clutch



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Solenoid



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Solenoid 2



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Starter Motors



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Loading



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Packaging



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Heat Sealing



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Step 7



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- ❑ Heat sealing of the bags is essential to curb the inflow of moisture and outflux of VCI from the packaging.



Raincoat bags



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**ROHS
Compliant**



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Papers

Plastics

VCI Emitters



ECO RUSTX



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- ☐ Reach approved VCI products
- ☐ First in India
- ☐ Ecologically and biologically friendly corrosion prevention chemicals
- ☐ Non carcinogenic chemicals
- ☐ Easy disposal
- ☐ Minimal consumption

