ISE. is an EPC company, specialized in instrumentation and control system. We are located in Jubail with a branch office at Yanbu.

Channel Partners

- Compressor Control Cooperation (CCC)
- Mascoat
ISE-MAIN FOCUS

Instrumentation: Field Instrumentation & Cabinet Integration.

Analyzer Solutions including design engineering and commissioning of complete Analyzer system, sample take off/drop off, sampling systems etc.

Turbo Machinery Control Systems, Compressor Control Corporation (CCC) KSA Channel partner.

Fire & Gas detection systems.

ESD and PLC System where ISE provides complete engineering, design, documentation and commissioning of SIS and PLC Upgrade.

Electrical Actuator from REXA USA

ARI- Armaturen Steam Trap & valves supplying the right size and specs as per the customer process line requirements to meet the process efficiency

Fiber Optic Service.

Thermal Insulation -MASCOAT
Why Insulation

- Protect personnel
- Reduce energy cost – ROI
- Added benefits:
  - Control condensation
  - Improve process control
  - Improve facility lifecycle costs
  - Improve work environment
Paint System for CUI, based in Line Temperature and pressure

Conventional Insulation based on Specification
A Paint coating system have to be followed prior to the conventional insulation because of Corrosion Under Insulation.

Corrosion Under Insulation (CUI) occurs when moisture becomes trapped in the area between the hot pipe and the thick layer of insulation surrounding it.
Conventional Insulation Methods- Problems Faced

- Insulation material absorb moisture, promoting corrosion
- Requires more man-hours in application
- Short lifespan
- Consistent maintenance issues
- Safety aspects
What If One Product could take care all your Problems like

- Corrosion
- Energy Conservation
- Personnel Protection
NEWER TECHNOLOGY ADDING CUI & CONVENTIONAL INSULATION

Let's Mascoat It
1. **Energy Conservation**
Main moto of Mascoat-Thermal Insulation Coating is to conserve or retain the energy within the substrate so that energy loss is reduced.

2. **It makes metals strongly anti-corrosive.**
Being an Ceramic Based Coating, mascoat will be 100% safe from the moisture problem there by nullifying the Corrosion Possibility. We could remove the substrate from CUI Program and subsequent inspections can be avoided.

3. **It insulates. The whole area.**
Hassle free Application and you could cover 100% where conventional insulation may not be possible.

4. **It improves Safe Touch areas. No burns.**
Since the surface temperatures are reduced, Substrate comes under Personal Protection.

5. **It keeps tubular systems visible.**
Walking above the insulated big bore pipes could result in loosing its tubular shape.
Approved Under APCS 5A/B which is the Radiant Heat Insulating Coating System

m. Mascoat – Approved Products

APCS-5A
- Delta T Thermal Insulating coating*

APCS-5B
- Delta T Thermal Insulating coating*

*Note: Refer to coating manufacturer’s Product Data Sheets for the above product.
<table>
<thead>
<tr>
<th>Mascoat Products</th>
</tr>
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<tbody>
<tr>
<td><strong>Mascoat DTI</strong></td>
</tr>
<tr>
<td>• Delta Thermal -Industrial</td>
</tr>
<tr>
<td><strong>Mascoat AC</strong></td>
</tr>
<tr>
<td>• Anti Condensation</td>
</tr>
<tr>
<td><strong>Mascoat HRC</strong></td>
</tr>
<tr>
<td>• High Resistive Coating</td>
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</table>
Mascoat DTI

Mascoat Industrial-DTI is designed to be a multi-purpose coating, providing insulation and solving corrosion under insulation issues, up to 190° C

It’s a One product taking care of 3 Solutions
• Energy Conservation
• Corrosion Under Insulation
• Personnel Protection

The coating’s high-tech formulation can be sprayed on as a combined paint and insulation system, with out any shutdowns. Hassle free applications, on live systems

Applied On

• Tanks
• Boilers
• Cookers
• Pressure valves
• Piping
• Heat exchangers
• Steam lines
• Processors
• Heaters
Mascoat DTI

Critical Application Areas
**Hassle Free Application**

- Mascoat Industrial must be mixed using a mud mixing paddle and applied properly to achieve all of its insulating capabilities.
- Can be sprayed using an airless spray machine with a minimum of 3000 PSI delivery rate.
- Easy Removals for Pipe inspections Using razor scraper.

<table>
<thead>
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<tr>
<td>1-Shelf Life is 18 months from Production date.</td>
</tr>
<tr>
<td>2-Applicators must be certified by us</td>
</tr>
<tr>
<td>3-DFT is decided based on Operating temperature, Pressure, Humidity etc.</td>
</tr>
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</table>
More DFT More Energy Saving?

<table>
<thead>
<tr>
<th>Ambient Temp 90F-&gt;33C</th>
<th>Temperature in Cel</th>
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<tbody>
<tr>
<td>DFT(Mils)</td>
<td>DFT(Microns)</td>
</tr>
<tr>
<td>200</td>
<td>5000</td>
</tr>
<tr>
<td>160</td>
<td>4000</td>
</tr>
<tr>
<td>120</td>
<td>3000</td>
</tr>
<tr>
<td>80</td>
<td>2000</td>
</tr>
<tr>
<td>40</td>
<td>1000</td>
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</table>
Mascoat’s Industrial-AC (Anti-Condensation) formulation is specially engineered for aggressive industrial environments, where it protects substrates, reduces condensation, blocks Corrosion Under Insulation (CUI) and improves equipment efficiency.

- While conventional insulation wicks moisture and breaks down when exposed regularly to water, Mascoat Industrial-AC withstands condensation, humidity and regular cleaning.
- Frequent insulation repair can be costly and time-consuming, but Industrial-AC’s durable, moisture-resistant design requires little maintenance—so you’ll save money and manpower.
Mascoat Industrial-AC is currently in use on substrates around the world to combat the undesired effects of condensation.

Typical applications include:

- HVAC systems
- Tanks
- Pipes
- Refrigerated storage
- Chillers
Mascoat’s WeatherBloc-HRC is the latest product in a family of high-quality reflective and thermal insulating coatings to offer the best in protection against heat transfer for roof and sidewall applications and also for water tanks.

<table>
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<tr>
<th>Location</th>
<th>Before Applying HRC</th>
<th>After Applying HRC</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Out Side</td>
<td>Inside</td>
</tr>
<tr>
<td>ISE Office</td>
<td>47</td>
<td>45</td>
</tr>
<tr>
<td>Mr Salims House</td>
<td>44.5</td>
<td>43.5</td>
</tr>
</tbody>
</table>

Note: Average of 3 days reading
WeatherBloc-HRC has been used in a variety of applications in commercial buildings, including:

- Rooftops
- Walls
- Electrical cabinets
- Accommodation units
- Shipping containers
- Offices
Benefits

- Applying HRC in commercial buildings will reduce the consumption of Electricity for Cooling System
- Protects substrates
- Improves roof life
- Quick and easy application
- Provides substrate protection
- Offers sealant quality
- Reduces expansion and contraction
Company Name: Shell
Location: Deer Park, TX USA
Thickness: 60 mils, 1500 microns (1.5 mm)
Reason for application: Personnel and CUI protection

Due to the humid environment in Deer Park, which is just south of Houston, Shell felt that they could not use conventional insulation.

By Applying 1500 Microns 72° Cel had go down to 55° cel
Company Name: Shell Refining
Location: Gonzales, LA USA
Thickness: 60-80 mils (1.5-2.0 mm)
Reason for application: Personnel Protection and energy retention

Shell Refining in Gonzales, LA, USA was having a problem with one of their heat exchangers, in that the constant buildup of Corrosion Under Insulation was requiring them to replace the substrate and insulation on a regular basis.

By Applying 1500 to 2000 Microns 94° Cel had go down to 38°
The Shell Chemical plant in Geismar, LA was having trouble keeping temperature in their distillation columns resulting from flash cooling during rainstorms.

By Applying 3500 substrate shown a better performance than 2” Perlite Conventional Insulation
In Shaybah, Saudi Arabia, one piece of equipment in the CUI program was an Exchanger with a surface temperature was 230°F (110°C). In June of 2010 the insulation was removed and corrosion was then removed 100%. The exchanger was put back in, Mascoat Industrial-DTI was then applied directly to the hot surface without shutdown. After the application was complete the surface temperature was 129°F (54°C), just a few degrees above the ambient temperature. The application was reported as a success and that Mascoat was able to meet and exceed the personnel protect guidelines of the facility.
## Comparison Over 10 years

Conventional Insulation Vs Mascoat

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<th>Ceramic Insulation Coating Mascoat $/m^2</th>
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### Note

1. 10 Years warranty by Mascoat
2. Once Mascoat Applied, Substrate Could be removed from CUI Program
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**Note**

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What Does This Mean?

Less Time
+ Less Money
+ Less Energy Lost
+ Less Emissions

An insulation system that pays you back!
Thank You