



JUBAIL SAUDI ARABIA
SECTION

Thermal Insulation Coating

12-Feb-2019

**Presented By
Salim Al Khaldi**



ISE



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.

Electraulic 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

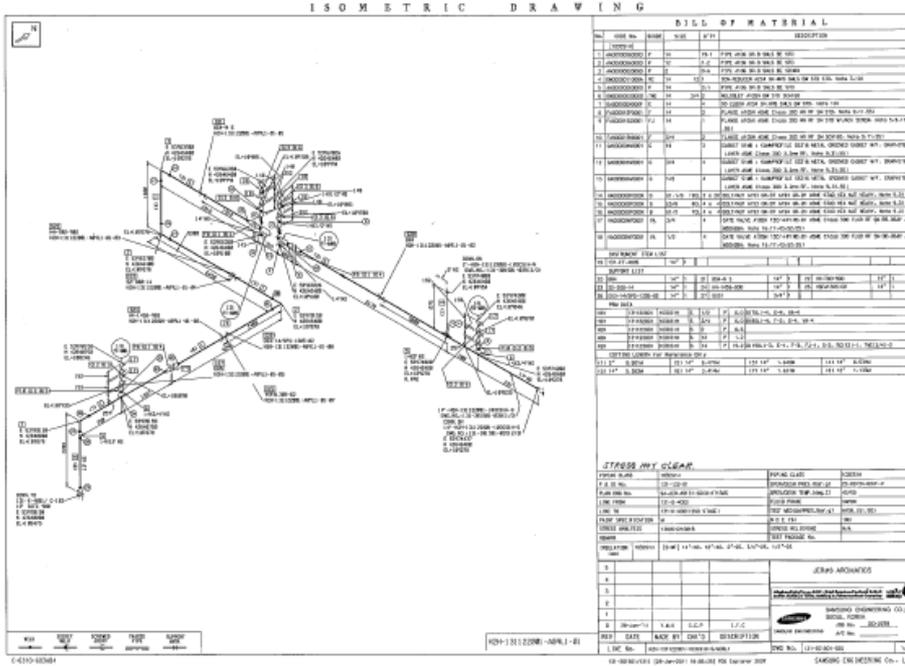
**Protect
personnel**

**Reduce energy
cost – ROI**

**Added
benefits**

- Control condensation
- Improve process control
- Improve facility lifecycle costs
- Improve work environment

Present Insulation System



STRESS NOT CLEAR.

PIPING CLASS	100CS1H	PIPING CLASS	100CS1H	
P & ID No.	131-122-01	OPERATION PRES. (bar-g)	25.89/54.46/7.4	
P.W. DWG NO.	5A-02H-0031-5ECO-071305	OPERATION TEMP. (deg.C)	43/95	
LINE FROM	131-0-4002	FLUID PHASE	VAPOR	
LINE TO	131-0-4001 (P&ID, S1/6/1)	TEST MEDIUM/PRES.(bar-g)	HYDR.151.903	
PAINT SPECIFICATION	M	N D E (°S)	100	
STRESS ANALYSIS	13R0212001B	STRESS RELIEVING	N/A	
REMARK		TEST PACKAGE No.		
INSULATION	100CS1H	[S/M] 14"-40, 12"-40, 2"-25, 3/4"-25, 1/2"-25		
5				
4				
3				
2				
1				
0	28-Jan-11	Y.M.K. C.C.P. I.P.C		
REV	DATE	MADE BY	CHK'D	DESCRIPTION
LINE No.	10N-13112200-100CS1H-5A09.1			
				DWG No. 131-301501-035
				1/3
				131-301501/1311 128-Jan-2011 18:06:35) POS Explorer 2007
				SAMSUNG ENGINEERING Co., LTD.

Paint System for CUI, based in Line Temperature and pressure

Conventional Insulation based on Specification

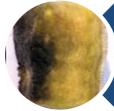
Painting System

Corrosion Under Insulation

A Paint coating system have to be followed prior to the conventional insulation because of 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

COMBINED SOLUTIONS

What If One
Product could take
care all your
Problems like

- Corrosion
- Energy Conservation
- Personnel Protection

NEWER TECHNOLOGY ADDING CUI & CONVENTIONAL INSULATION



Lets
Mascoat It

Why Mascoat

1. Energy Conservation

Main moto of Mascoat-Thermal Insulation Coating-is to conserve or retain the energy with in 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.

APCS APPROVALS

Approved Under APCS 5A/B which is the Radiant Heat Insulating Coating System

Document Responsibility: Paints and Coatings Standards Committee
Issue Date: 16 October 2017
Next Planned Update: 16 October 2020

SAES-H-101V

Approved Saudi Aramco Data Sheets - Paints and Coatings

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.



Mascoat Products

Mascoat DTI

- Delta Thermal -Industrial

Mascoat AC

- Anti Condensation

Mascoat HRC

- High Resistive Coating

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



Mascoat DTI

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 a airless spray machine with a minimum of 3000 PSI delivery rate.

Easy Removals for Pipe inspections Using razor scraper



PS

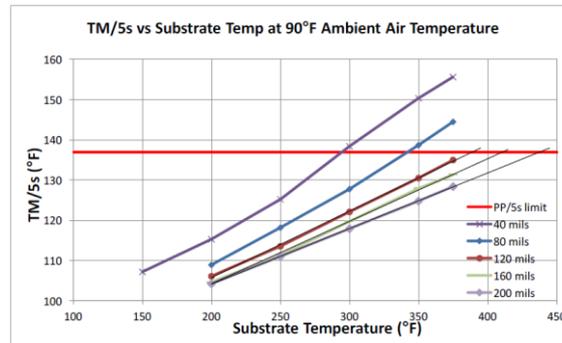
1-Shelf Life is 18 months from Production date.

2-Applicators must be certified by us

3-DFT is decided based on Operating temperature, Pressure, Humidity etc

More DFT More Energy Saving ?

Ambient Temp 90F->33C		Temperature in Cel	
DFT(Mils)	DFT(Microns)	Before Application	After Application
200	5000	190	54
160	4000	190	55.5
120	3000	190	59
80	2000	190	63
40	1000	190	68.3



Mascoat AC

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 AC

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 HRC

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.



	Before Applying HRC		After Applying HRC	
	Out Side	Inside	Out Side	Inside
Location	Temp in Cel	Temp in Cel	Temp in Cel	Temp in Cel
ISE Office	47	45	48	36
Mr Salims House	44.5	43.5	46	39
Note: Average of 3 days reading				

Mascoat HRC

WeatherBloc-HRC has been used in a variety of applications in commercial buildings, including:

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



Mascoat HRC

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

Mascoat DTI –Shell Case Studies

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



Mascoat DTI –Shell Case Studies

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°

Mascoat DTI –Shell Case Studies

Company Name: Shell Chemical plant

Location: Geismar, , LA USA

Thickness: 140 mils (3.5 mm)

Reason for application: Heat Loss during Rain storms

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

Mascoat DTI –Case Studies

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

Activities Over 10 years	Coventional Insulation \$/m2	Ceramic Insulation Coating Mascoat \$/m2
Anti Corrosion	X	?
Conventional Insulation Materials	X	?
Yearly Maintenance(Scaffolders, Insulators)	X	?
Corrosion Inspection under CUI program	X	?
Energy Lose due to Moisture and not having 100% Ins coverage.	X	?

Note

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

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What Does This Mean?

- Less Time**
 - + Less Money**
 - + Less Energy Lost**
 - + Less Emissions**
-

An insulation system that pays you back!

Lets Mascoat It.....



Thank You