

Field Test Report Belanak

Bronya Online application



Thermal Insulation Comparison

	BRONYA	WOOL	CALCIUM SILICATE	PYROGEL
Conductivity	0,001	0,055	0,08	0,03
Operating temperature (C)	-60 to 450	35 to 650	35 to 950	0 to 600
Cladding	NO	YES	YES	YES
Object modifications	NO	YES	YES	YES
Complex shapes design	NO	YES	YES	YES
CUI	NO	YES	YES	YES
Online application	YES	NO	NO	NO
Lifetime	Up to 10 yrs	Up to 5 yrs	Up to 5 yrs	Up to 5 yrs
Storage capacity	LOW	HEAVY	HEAVY	HEAVY
Lifting / crane	NO	YES	YES	YES
Volume material	LOW	HIGH	HIGH	HIGH
Toxicology	Negative	Positive	Positive	Positive

Thermal Insulation Comparison

Easy application



	BRONYA	OTHERS
Duration	7 days	30 days
Personnel	6 people	Min 20
Man days	42	600
Equipment	Minimal	heavy
Storage material	Minimal	Large
Online application	Yes	Not recommended
Object modifications	None	Required

In Optimal conditions (4 inch pipe) = 200 meters /day for 1 layer (team of 3)

Thermal Insulation Comparison

Easy Maintenance

	BRONYA	OTHERS
Inspection method	Visual	Destructive
Special tools	NO	YES
Repair	Brush	Complex
Risks after repair	Minimal	Loss of sealing



Thermal Insulation Comparison

General cost

	BRONYA	OTHERS
Material	\$	\$\$\$
Man power	\$	\$\$\$
Equipment	\$	\$\$
Production impact	Minimal	heavy
Facilities & Safety impact	Minimal	heavy
Insulation upgrade	Fast & Easy	Full Redesign

Bronya Thermal Insulation

Simply the best solution for your needs



No CUI

Improves process performances

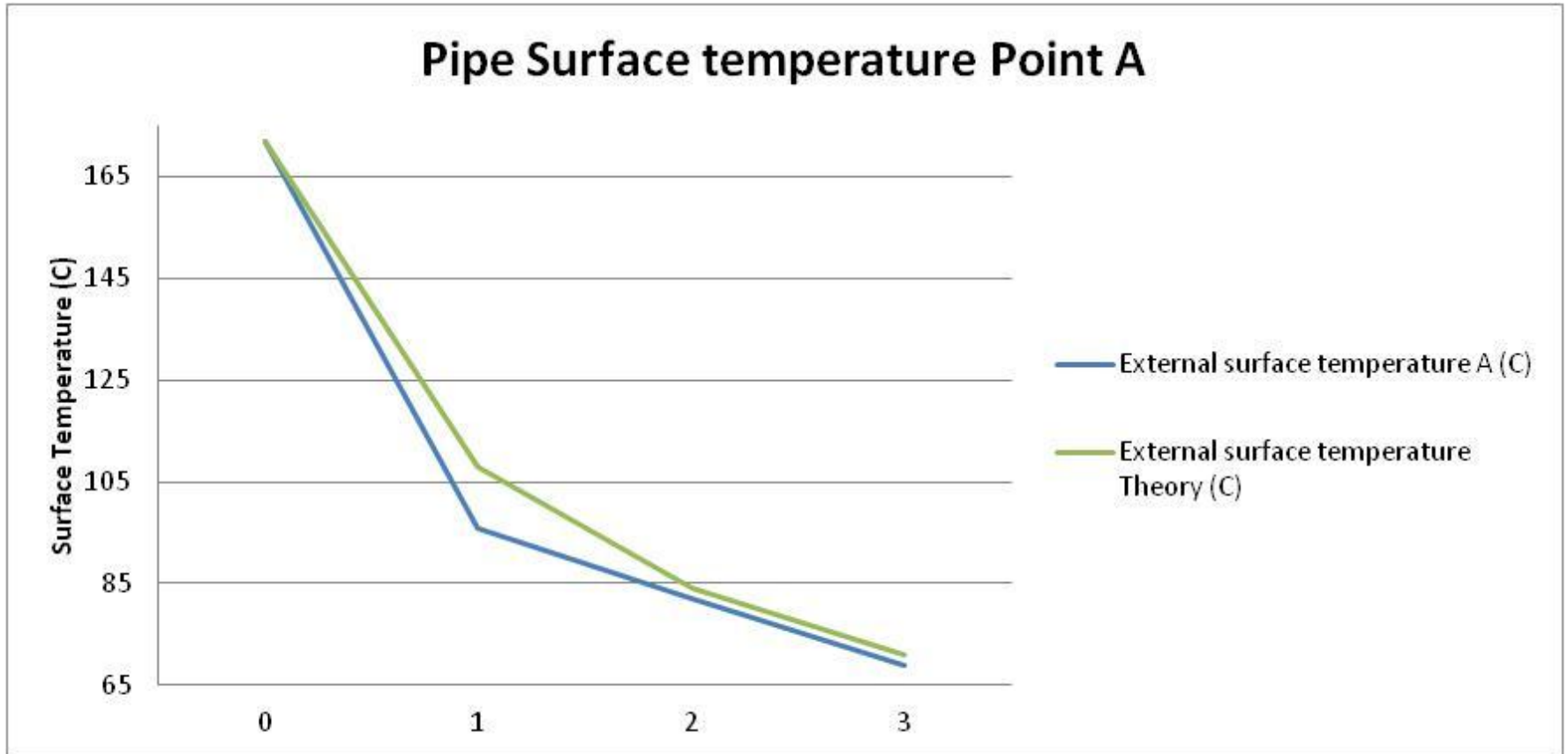
Increase personnel safety

Reduce your cost

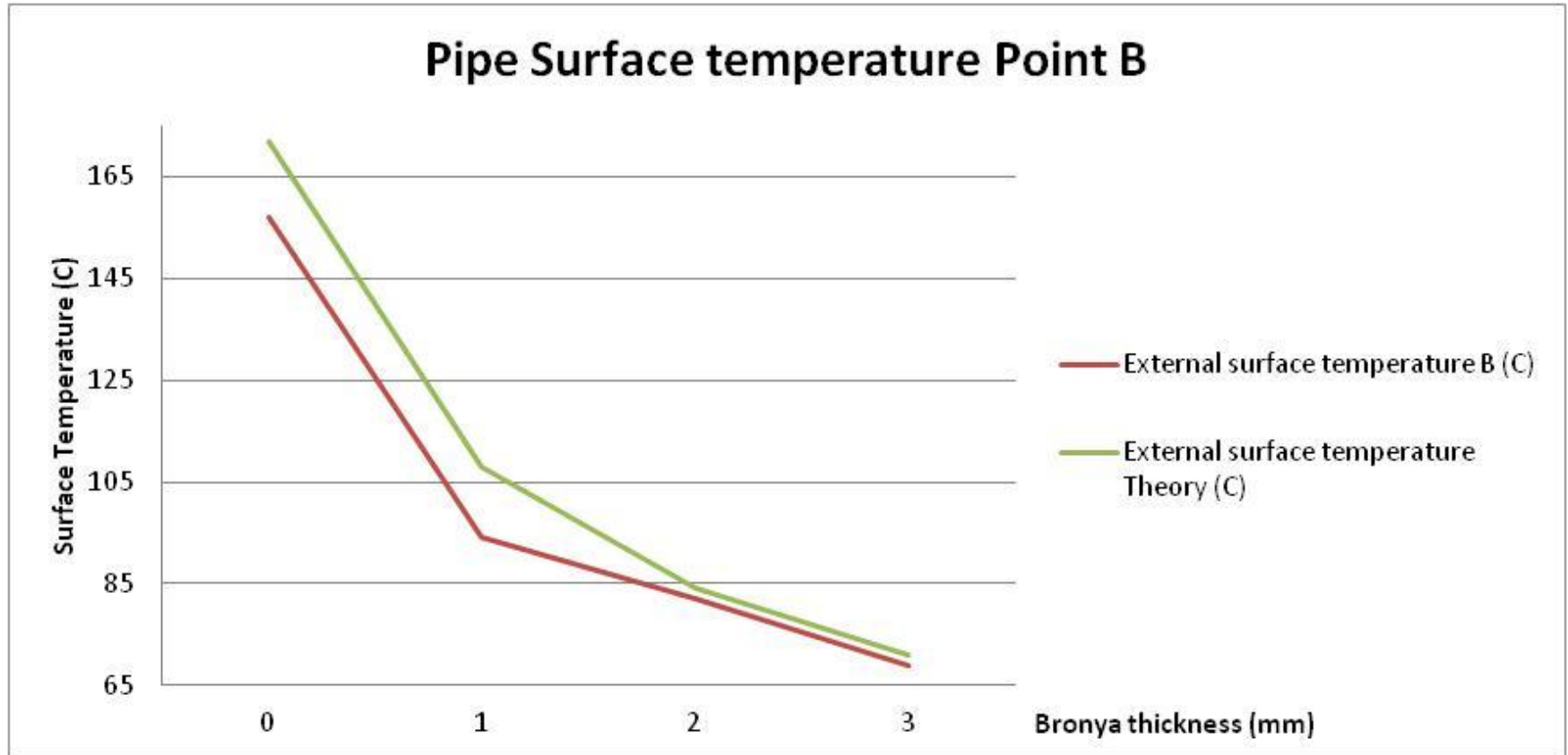
Field Test Object

Location	FPSO Belanak
Temperature	170 C
Material	Carbon Steel
Diameter	2"
Length	7.6m

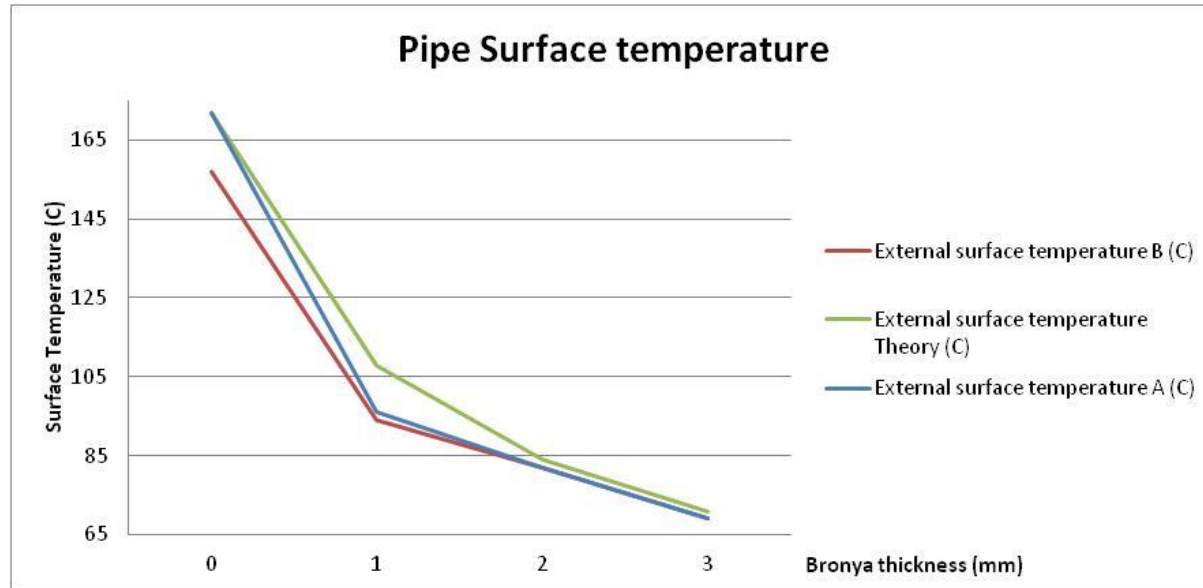
Results Personnel Protection



Results Personnel Protection

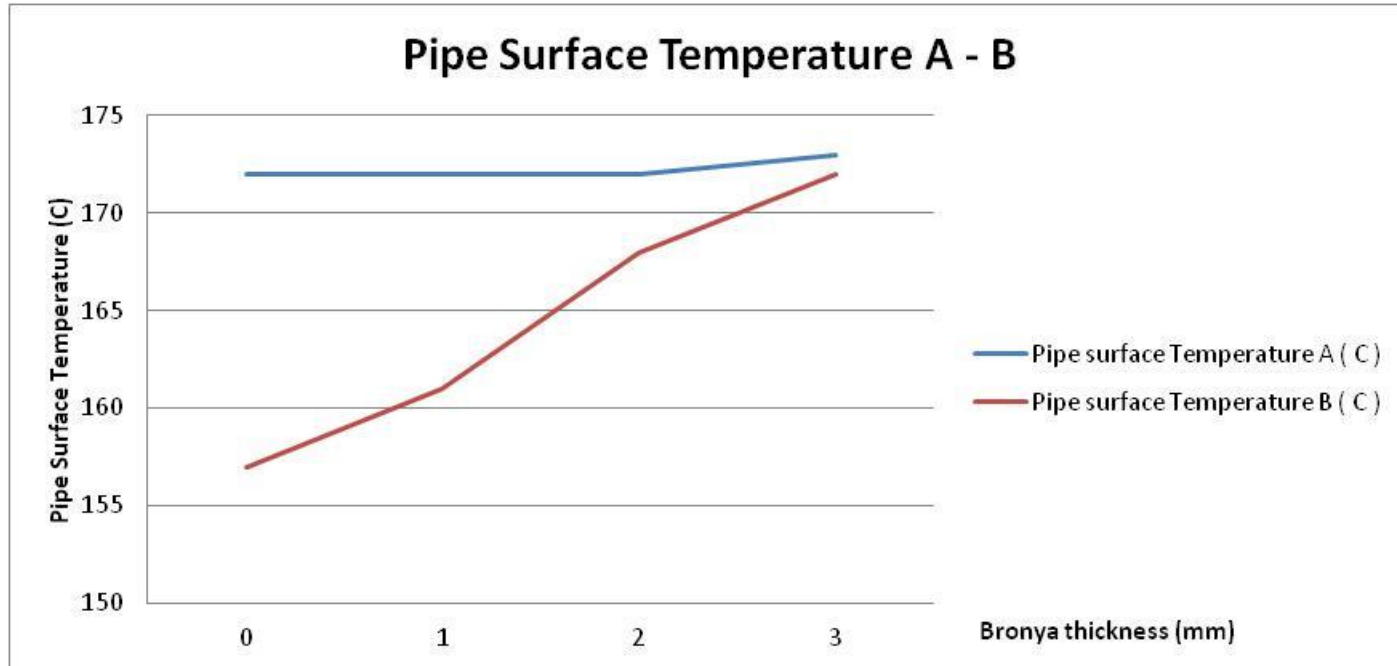


Results Personnel Protection



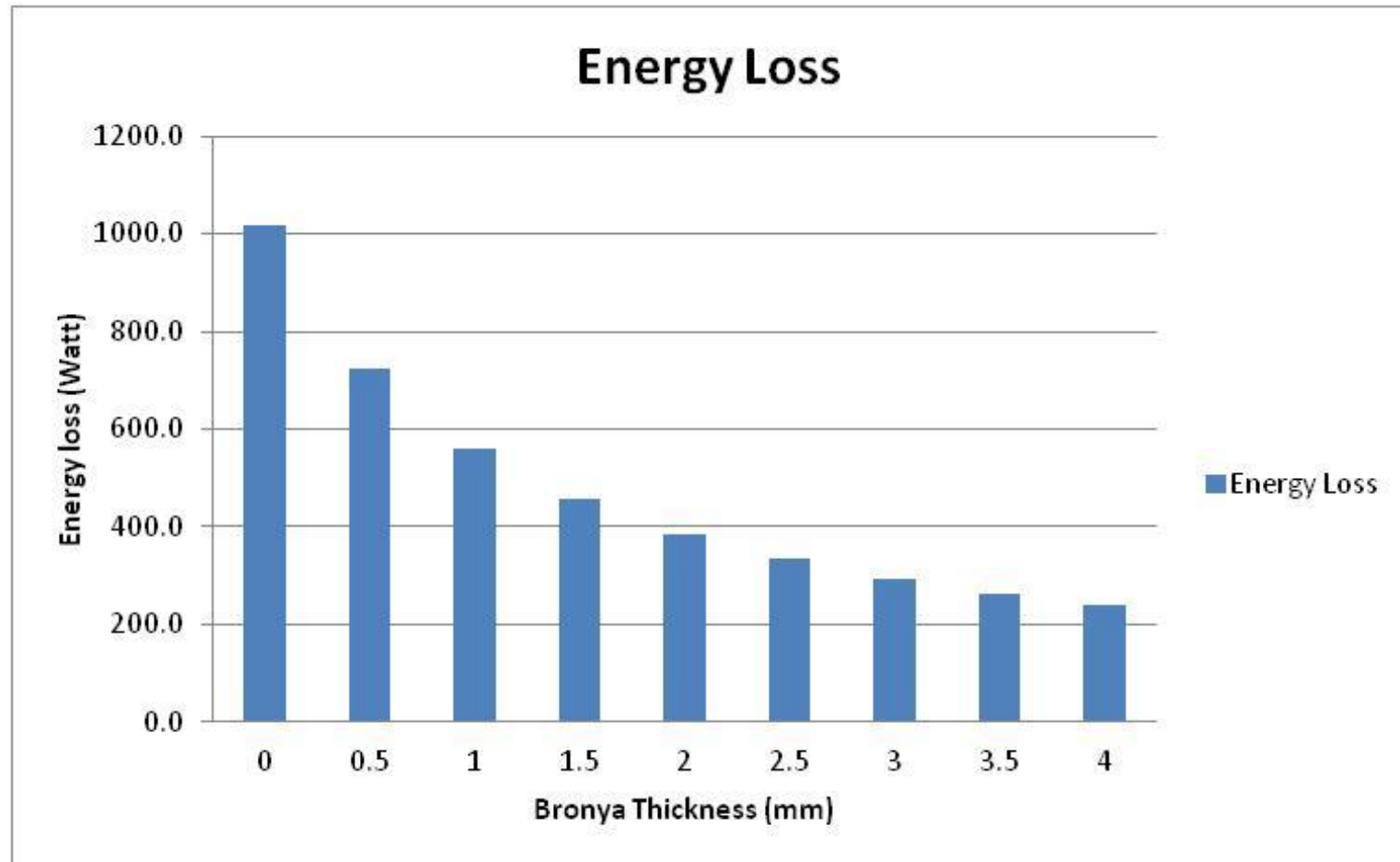
Thickness	0	1	2	3
External surface temperature A (C)	172	96	82	69
External surface temperature B (C)	157	94	82	69
External surface temperature Theory (C)	172	108	84	71

Results Process

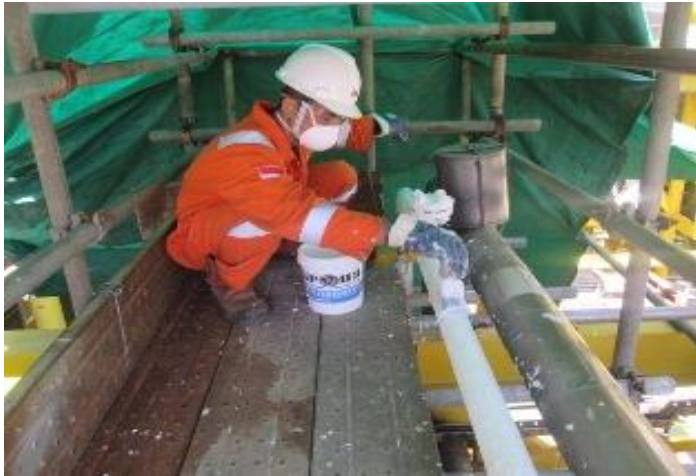


Thickness	0	1	2	3
Pipe surface Temperature A (C)	172	172	172	173
Pipe surface Temperature B (C)	157	161	168	172
Temperature drop	15	11	4	1

Results Energy Loss



Application in Belanak



How Bronya protects against corrosion?

“CUI” is one of the worse problems in (petro) chemical industries

The most difficult problem to prevent

The cost associated to CUI is astronomical

Data show: 60% of pipe leaks are caused by CUI

How Bronya reduces energy losses ?

