

ARMACELL ENERGY

PROJECT REFERENCES

Thermal and acoustic insulation systems designed for the harshest of environments.

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 **armacell**[®]
MAKING A DIFFERENCE AROUND THE WORLD

TOTAL SOLUTION FOR THE ENERGY MARKET

Armacell in action

The dedicated energy division of Armacell provides thermal and acoustic insulation systems designed to deliver performance advantage, project, operational and energy savings, asset integrity and safety in the harshest of environments. At Armacell, we help you succeed.





Upstream

Exploration
Field Development



Midstream

Pipeline
Storage
Shipping / Marine



Downstream

Refinery
Petrochemical
Chemical
Liquid Gasses
Gas Processing



Power

Power
Metal Production
Mining

Coal Chemical

Project Name	Fude MTO plant	Geermu MTO plant	Pucheng MTO plant	Shenda MTO plant	Shenhua Ningmei coal to oil plant	Xingxing MTO plant
Project Group	Coal Chemical	Coal Chemical	Coal Chemical	Coal Chemical	Coal Chemical	Coal Chemical
Type of Project	Coal Chemical	Coal Chemical	Coal Chemical	Coal Chemical	Coal Chemical	Coal Chemical
Specifier	Sinopec LPEC	Sinopec LPEC	Sinopec LPEC	Sinopec LPEC	HQCEC	Sinopec LPEC
Owner	Fude Group	Yanhu Group	Shanmei Group	Lenovo	Shenhua Group	Xingxing Group
Insulation Contractor	DPEC	DPEC	DPEC	DPEC	Sinochem 3rd construction	DPEC
Location	China	China	China	China	China	China
Description of Work	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment
Inaulation System	ArmaFlex	ArmaFlex	ArmaFlex	ArmaFlex	ArmaFlex	ArmaFlex
Operating Temperature	-170 °C to +21 °C	-170 °C to +21 °C	-170 °C to +21 °C	-170 °C to +21 °C	-170 °C to +21 °C	-170 °C to +21 °C
Year of installation	2015	2014	2014	2014	2016	2014



Coal Chemical

Downstream

Project Name	Yanchang MTO plant	AUM Complex	EBIC	Fosforit Ammonia Plant	Fushun Refinery	Guangzhou Ethylene Maintenance
Project Group	Coal Chemical	Downstream	Downstream	Downstream	Downstream	Downstream
Type of Project	Coal Chemical	Ammonia Plant	Ammonia Plant	Ammonia production	Parrafin Collection	Ethylene
Specifier	Sinopec LPEC	KBR	KBR / Proman	Technimont	HQCEC	Guangzhou Ethylene
Owner	Yanchang Group	Proman	EBIC	Eurochem	CNPC	Sinopec
Insulation Contractor	DPEC	Kaefer	local IC	Velesstroy	HQCEC	Zidong
Location	China	Trinidad and Tobago	Egypt	Russia	China	China
Description of Work	Thermal Insulation of Process Piping and Equipment	Acoustic Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of process piping.	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping, Equipment and Sphere Tanks
Insulation System	ArmaFlex	ArmaSound	ArmaFlex	ArmaFlex	ArmaFlex & ArmaSound	ArmaFlex
Operating Temperature	-170 °C to +21 °C	-50 °C to +120 °C	-50 °C to +120 °C	-42 °C to +60 °C	-50 °C to +120 °C	-160 °C to +21 °C
Year of installation	2013	2009	2008	2018	2009	2011



Downstream

Project Name	Laggan Tormore	Maoming Ethylene Maintenance	Morón	QiLU Petrochemical Maintenance	Saudi Kayan Olefins Plant	Shell Deer Park
Project Group	Downstream	Downstream	Downstream	Downstream	Downstream	Downstream
Type of Project	Shetland Gas Plant (SGP)	Ethylene	Ammonia Plant	Ethylene Plant	Olefin Plant	Butadiene
Specifier	Petrofac / Total	Maoming Ethylene	KBR	Qi Lu Ethylene	KBR	Shell
Owner	Total E&P UK Ltd.	Sinopec	MAN	Sinopec	Saudi Kayan	Shell
Insulation Contractor	Petrofac Facilities Management Ltd.	Hengfu	Kaefer	Baishixin	Cape / RB Hilton	Protherm
Location	Shetland Islands	China	Venezuela	China	Saudi Arabia	United States
Description of Work	Winterisation and Acoustic Insulation	Thermal Insulation of Process Piping, Equipment and Sphere Tanks	Acoustic Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Acoustic Insulation of Process Piping and Equipment	Thermal Insulation of Storage Spheres
Insulation System	ArmaFlex & ArmaSound	ArmaFlex	ArmaSound	ArmaFlex	ArmaSound	ArmaFlex
Operating Temperature	-50 °C to +21 °C	-40 °C to +135 °C	-50 °C to +125 °C	-160 °C to +21 °C	-40 °C to +125 °C	Ambient to +120 °C
Year of installation	2014	2013 -2014	2011	2009	2005	2011



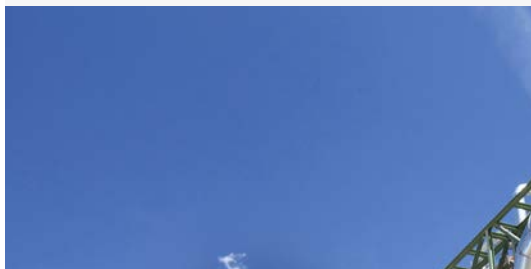
Downstream

Project Name	Wanhua PDH acoustic maintenance	Yanzijiang PDH acoustic maintenance	Yara Freeport LLC
Project Group	Downstream	Downstream	Downstream
Type of Project	Propane de hydrogen	Propane de hydrogen	Fertiliser / Ammonia
Specifier	Qilu engineering	Hualu Engineering	KBR
Owner	Wanhua chemical	Donghua Energy	BASF
Insulation Contractor	Sinopec 10th construction	Zhonghui	KBR
Location	China	China	Freeport, TX, USA
Description of Work	Acoustic Insulation of Process Piping, Tanks, Valves and Flanges	Acoustic Insulation of Process Piping, Tanks, Valves and Flanges	Cold Acoustic Insulation
Insulation System	ArmaSound	ArmaFlex	ArmaSound Class C
Operating Temperature	Ambient to +70 °C	Ambient to +71 °C	-40 °C to +20 °C
Year of installation	2015	2016	2018



FPSO

Project Name	BP Glen Lyon	Greater Plutonio	Greater Plutonio: Block 18	Lancaster / Aoku Mizu	Schiehallion	Terra Nova
Project Group	FPSO	FPSO	FPSO	FPSO	FPSO	FPSO
Type of Project	FPSO	FPSO	Field Development	FPSO	FPSO	FPSO
Specifier	Amec		KBR		KBR	KBR
Owner	BP	BP	BP	Bluewater Energy Service b.v.	BP	PSN
Insulation Contractor	Finetec	Cheondo	Prezioso Angola			Corsby Salamis
Location	Shetland Islands	Angola	Angola	United Kingdom	Shetland Islands	Canada
Description of Work	Thermal Insulation for Process Piping and Equipment	Mechanical protection: Covering System Arma-Chek R over MW	Thermal and Acoustic Insulation	Thermal Insulation	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment
Insulation System	ArmaFlex	Arma-Chek	ArmaFlex & ArmaSound	ArmaFlex	ArmaFlex	ArmaFlex
Operating Temperature	+20 °C to +135 °C	+0 °C to +150 °C		-50 °C to +125 °C	+0 °C to +100 °C	up to +100 °C
Year of installation	2016	2007	2017	2018	1997	2000



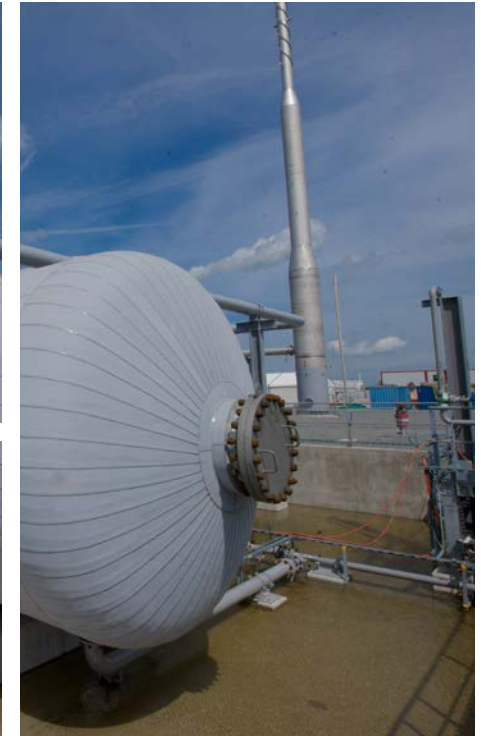
LNG

Project Name	Amur Gas procesing plant	APA Roma Brisbane pipeline - 2017	Atlantic LNG	Beihai LNG terminal	Dalian LNG Terminal	EKB Viking
Project Group	LNG	LNG	LNG	LNG	LNG	LNG
Type of Project	LNG	LNG	LNG export	LNG	LNG Receiving Terminal	Gas Storage
Specifier	Linde			Sinopec LPEC	HQCEC	Amec
Owner	GAZPROM	APA Group	BP Trinidad LNG	Sinopec	CNPC	EKB
Insulation Contractor	Velesstroy		Massy	DPEC	DPEC	Kaefer
Location	Russia	Australia	Trinidad & Tobago	China	China	Germany
Description of Work	Acoustic Insulation (Sound mapping)	Acoustic Insulation	Acoustic Insulation	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Acoustic Insulation of Process Piping, Tanks, Valves and Flanges
Insulation System	ArmaSound Barrier D		ArmaSound Class C	ArmaFlex	ArmaFlex	ArmaSound
Operating Temperature	-170 °C to +21 °C			-170 °C to +21 °C	-160 °C to +21 °C	-40 °C to +135 °C
Year of installation	2019 till 2021	2017		2015	2010	2014



LNG

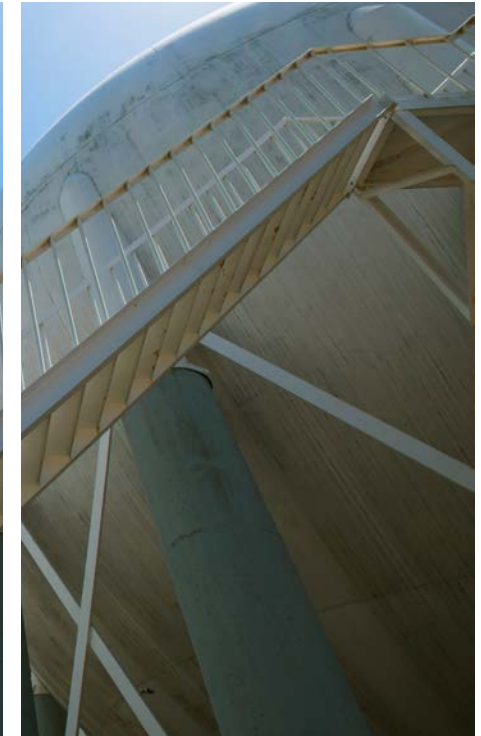
Project Name	Freeport LNG Export Terminal	Hassi Messaoud	Jincheng Yigao CBG Liquefaction plant	Liaohe Oilfield	Qingdao LNG Terminal	Shah Denis Phase 2 (Sangachal Terminal)
Project Group	LNG	LNG	LNG	LNG	LNG	LNG
Type of Project	LNG Receiving Terminal	LPG - Processing	CBG Liquefaction Plant	NG Treatment	LNG	Gas
Specifier	CB&I	Saipem	Donghua	Liaohe	Sinopec LPEC	ATA Yard
Owner	Freeport LNG	Sonatrach	TownGas	CNPC	Sinopec	BP
Insulation Contractor	CB&I	Saipem	Sinogreen	Liaohe LOS	DPEC	Bon Accord Engineering Supplies
Location	USA	Algeria	China	China	China	Azerbaijan
Description of Work	Cold Acoustic & Hot conservation on instrument lines	Thermal Acoustic Insulation of Vessels & Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Cold Acoustic & Hot conservation on instrument lines
Insulation System	ArmaSound Barrier E	ArmaFlex	ArmaFlex	ArmaFlex	ArmaFlex	ArmaSound
Operating Temperature	-40 °C to +135 °C	-50 °C to +105 °C	-170 °C to +21 °C	-170 °C to +21 °C	-50 °C to +105 °C	-40 °C to +125 °C
Year of installation	2018	2009	2011	2009	2014	2017



LNG

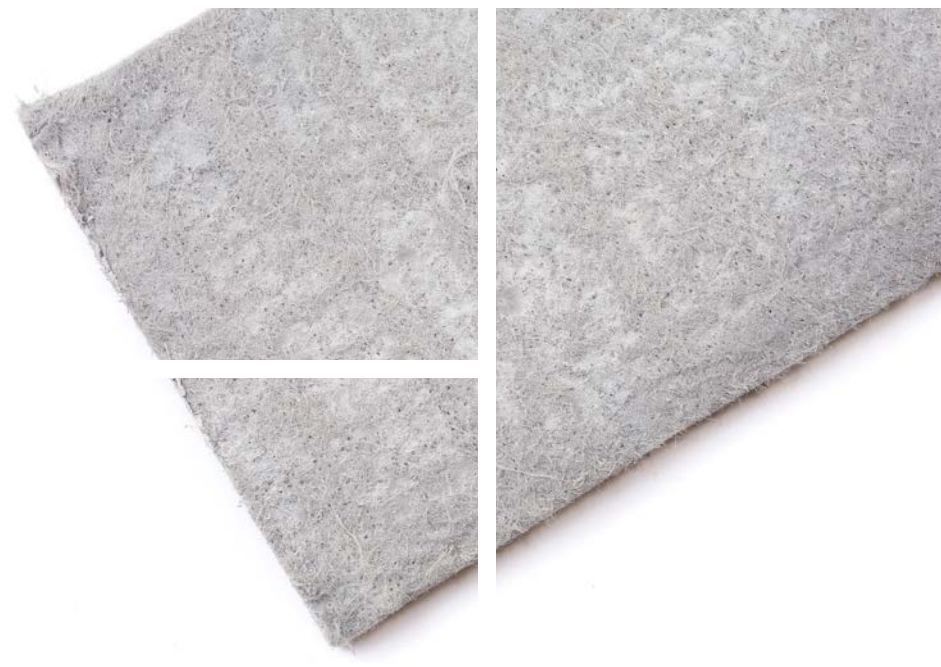
Midstream

Project Name	Skikda	Xingyuan LNG plant	Yamal LNG	Yemen	Yuanheng LNG plant	PTT LNG Terminal
Project Group	LNG	LNG	LNG	LNG	LNG	Midstream
Type of Project	LNG Plant	LNG	LNG	LNG	LNG	LNG Storage Tank
Specifier	KBR	Contax	Technip	Technip	Contax	Fluor Corporation
Owner	Sonatrach	Xingyan Group	NOVATEC	Yemen LNG Company	Yuanheng Group	PTTLNG
Insulation Contractor	Prezioso	Sinochem 3rd construction	Renaissance Heavy Industries	Kaefer	Sinochem 3rd construction	
Location	Algeria	China	Russia	Yemen	China	Thailand
Description of Work	Thermal and Acoustic Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Acoustic Insulation	Acoustic Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	
Insulation System	ArmaFlex	ArmaFlex	ArmaSound Barrier	ArmaSound	ArmaFlex	
Operating Temperature	-40 °C to +125 °C	-170 °C to +21 °C	-170 °C to +21 °C	-50 °C to +177 °C	-170 °C to +21 °C	
Year of installation	2009 - 2010	2010	2017-2018	2011	2011	2018



Offshore

Project Name	BP Claire Ridge	BP Mad Dog II	BP Mad Dog II	BP Mad Dog II	Cygnus Development Field	Deep Panuke
Project Group	Offshore	Offshore	Offshore	Offshore	Offshore	Offshore
Type of Project	Offshore Development	Oil platform	Oil platform	Oil platform	Offshore Development	Production Platform
Specifier	Amec	Wood Plc, KBR	Wood Plc, KBR	Wood Plc, KBR	amec	SBM
Owner	BP	BP p.l.c	BP p.l.c	BP p.l.c	GDF Suez	EnCana
Insulation Contractor	Finetec	Jinsung Tech & SHI In-house contractor	Jinsung Tech & SHI In-house contractor	Jinsung Tech & SHI In-house contractor	Kaefer C&D, Barrier Architectural	Kaefer
Location	United Kingdom	South Korea	South Korea	South Korea	United Kingdom	Canada
Description of Work	Thermal Insulation for Process Piping and Equipment	Thermal Insulation of Cold Conservation Piping and Equipment	Acoustic Insulation of Process Piping and Equipment	Acoustic Insulation of Process Piping and Equipment	Thermal & Acoustic Insulation for Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment
Insulation System	ArmaFlex	ArmaFlex	ArmaFlex, RD240, ArmaSound Barrier E, Arma-Chek R	ArmaGel HT	ArmaFlex	ArmaFlex
Operating Temperature	+20 °C to +135 °C	-50 °C to +125 °C	-50 °C to +125 °C	-50 °C to +400 °C	-50 °C to +125 °C	-46 °C to +150 °C
Year of installation	2015	2019 till 2020	2019 till 2020	2019 till 2020	2016	2010



Offshore

Project Name	EPC-4	HHI Barzan Project	Kashagan	Kipper Tuna	Kizomba Satellites	Kuyumbinskoe oil field
Project Group	Offshore	Offshore	Offshore	Offshore	Offshore	Offshore
Type of Project	Oil platform	Platform	Offshore Rig	Platform	Offshore Rig	Oil platform
Specifier	NCOC	McDermott	Tecnomare	WorleyParsons	Amec Paragon	Samaraneftegazproect
Owner	NCOC	RasGas Company Ltd.	AGIPCO	Esso / BHP	Esso	SlavNeft
Insulation Contractor	SICIM	Finetec	Keppel Yards	Kaefer	Prezioso	
Location	Kazakhstan	Korea	Kazakhstan	Australia	Angola	Russia
Description of Work	Mechanical protection (Covering system)		Thermal Insulation of Process Piping and Equipment	Thermal Acoustic Insu- lation of Process Piping and Equipment	Thermal Insulation of Process Piping	Acoustic Insulation
Insulation System	ArmaChek R		ArmaFlex	ArmaFlex	ArmaFlex	ArmaFlex, ArmaChek R
Operating Temperature	+20 °C to +100 °C		Up to +80 °C	-50 °C to +125 °C	-50 °C to +125 °C	+20 °C to +100 °C
Year of installation	2018-2019	2013	2015	2010	2015	2018



Offshore

Project Name	Platong Gas II	Sakhalin2	Shah Deniz Phase I	Shell Vito	Tombua Landana	
Project Group	Offshore	Offshore	Offshore	Offshore	Offshore	
Type of Project	Production Platform	Platforms	Offshore Rig	Offshore Rig	Platform	
Specifier	WorleyParsons	amec	KBR			
Owner	Chevron / Mitsui / PTTEP	Gazprom & Shell	BP	Shell	Chevron	
Insulation Contractor	Kaefer	Cheondo	Tekfen		Cheondo	
Location	Thailand	Russia	Azerbaijan	USA	Angola	
Description of Work	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation of Process Piping and Equipment	Thermal Insulation	Process Insulation of Process Piping and Equipment	
Insulation System	ArmaFlex	ArmaFlex	ArmaFlex	ArmaGel HT	ArmaFlex	
Operating Temperature		Up to +150 °C	-50 °C to +125 °C	+125 °C to +250 °C	Up to +100 °C	
Year of installation	2014	2013 -2014	2008	2018	2009	



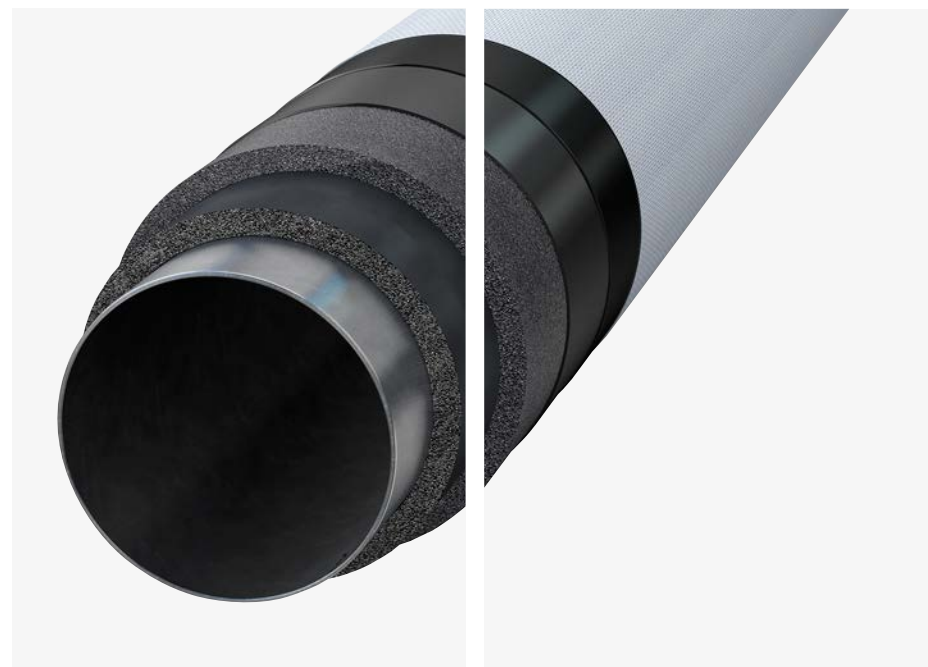
Petrochemical

Pipeline

Power

Process Plant

Project Name	HyoSung Vina Chemical	SCPX Early Works and Facilities Project	Petrobras, Mario Lago	Djarum Tobacco Plant	Hyundai Heavy Industries NASR2	Tengizchevroil Tengiz Third Gen. (in DSME)
Project Group	Petrochemical	Pipeline	Power	Process Plant	Process Plant	Process Plant
Type of Project	Petrochemical	Compressor Station	Thermal Power Plant	Tobacco Plant	Gas treatment facility	Oil & Gas treatment facility
Specifier	Hyundai E&C	KBR		ASEA	ADMA OPCO	Fluor Corporation
Owner	HyoSung Vina Chemicals	BP	Petrobras - UTE Mario Lago		Adnoc Gas Processing	Tengizchevroil
Insulation Contractor	Sung Ji Eng & Construction		Mills SI	ASEA	Donsung Finetec	DSME In-house contractor
Location	Vietnam	Azerbaijan, Georgia, Turkey	Brazil	Indonesia	United Arab Emirates	Kazakhstan
Description of Work	Thermal Insulation	Acoustic Insulation	Thermal Insulation of chilled water	Thermal Insulation of Plant Room	Thermal Insulation	Thermal Insulation
Insulation System	ArmaFlex	ACH-Mastic	ArmaFlex	ArmaFlex	ArmaFlex	ArmaFlex, ArmaSound Barrier HC
Operating Temperature	-50 °C to +125 °C	+20 °C to +125 °C	+5 °C to +8 °C		0 °C to +80 °C	-50 °C to +125 °C
Year of installation	2019 till 2020	2019	2012	2013	2017 till 2018	2019

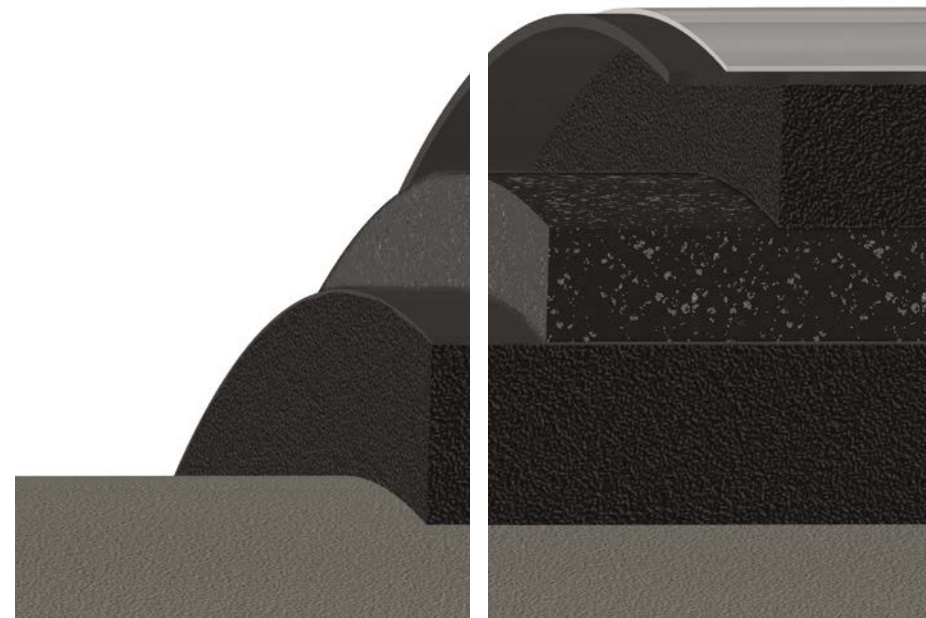


Refinery

Project Name	Abreu e Lima Refinery (RNEST) SNOX 1 (U-93)	Abreu e Lima Refinery (RNEST) unit (U-60)	Chevron SRC	Jazan IGCC	KNPC Al Zour	LACC Project North America
Project Group	Refinery	Refinery	Refinery	Refinery	Refinery	Refinery
Type of Project	sulphur removal	LPG	Refinery	Refinery	Refinery	Ethylene cracker
Specifier	Qualiman Engenharia - Filial PE	CCER - Consorcio Conenge / Possebon	SRC (Singapore Refinery Company)	Saipem	Saipem	McDermott
Owner	Petrobras	Petrobras	Chevron	Saudi Aramco	KIPIC - Kuwait Integrated Petroleum Industries Company	Axiall Lotte
Insulation Contractor	Qualiman Engenharia - Filial PE	CCER - Consorcio Conenge / Possebon		Cape RB Hilton SA Ltd	Kaefer Kuwait	Apache Industrial Services
Location	Ipojuca, Pernambuco, Brazil	Ipojuca, Pernambuco, Brazil	Singapore	Saudi Arabia	Kuwait	Lake Charles, LA, USA
Description of Work	Thermal Insulation	Thermal Insulation	Thermal Insulation	Acoustic Insulation	Thermal Insulation	Acoustic Insulation
Insulation System	ArmaGel HT	ArmaGel HT	ArmaChek R	ArmaFlex	FEF, Armaflex AC class 0	ArmaSound Class C
Operating Temperature	+125 °C to +250 °C	+125 °C to +250 °C	-50 °C to +125 °C	-40 °C to +20 °C	-50 °C to +125 °C	+20 °C to +125 °C
Year of installation	2019	2019	2019	2019	2019	2018

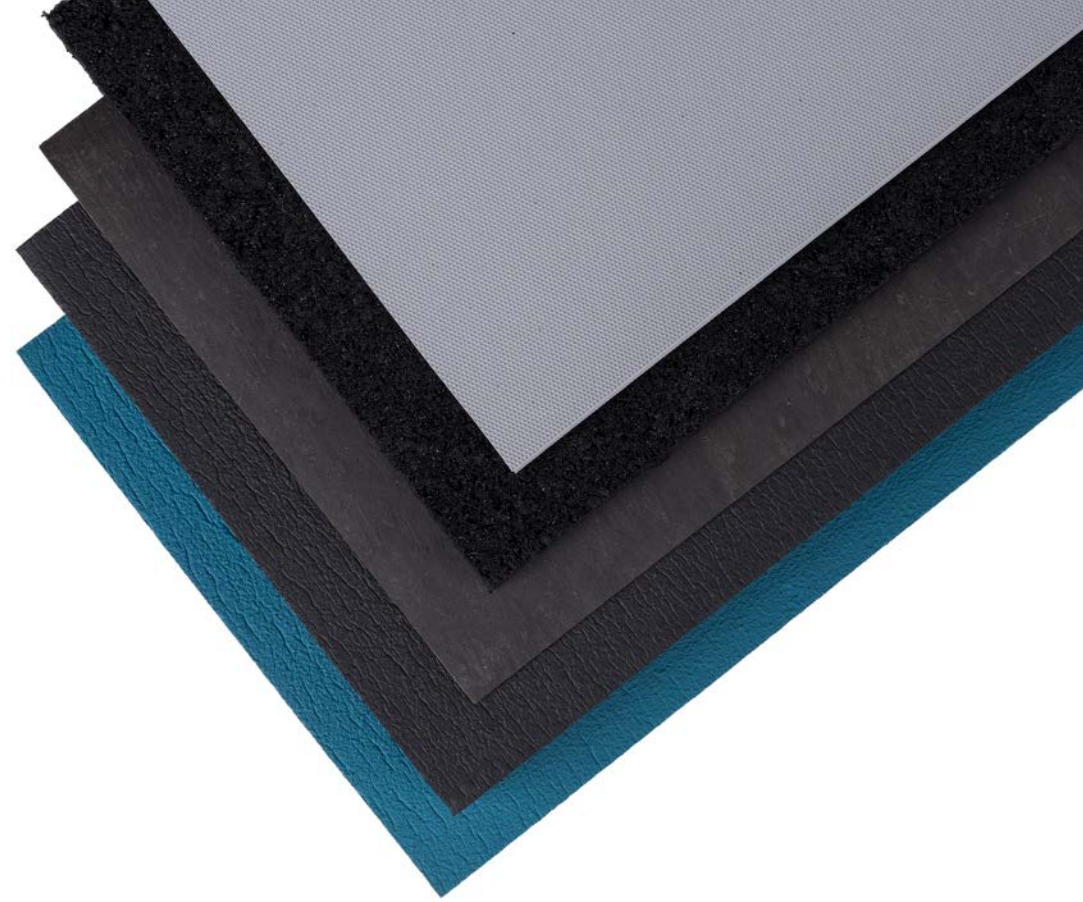


Project Name	Pennsylvania Chemicals (Franklin)	Port Arthur Ethylene Cracker			
Project Group	Refinery	Refinery			
Type of Project	Ethylene cracker	Ethylene cracker			
Specifier	Bechtel	McDermott			
Owner	Shell	Total			
Insulation Contractor	Petrochem, Brock, API	to be advised			
Location	Monaca, PA, USA	Port Arthur, Texas, USA			
Description of Work	Thermal and Acoustic Insulation	Acoustic Insulation			
Insulation System	ArmaFlex HTI & ArmaSound Barrier	ArmaSound Class C			
Operating Temperature	+20 °C to +125 °C	+20 °C to +125 °C			
Year of installation	2018-2020	2019			



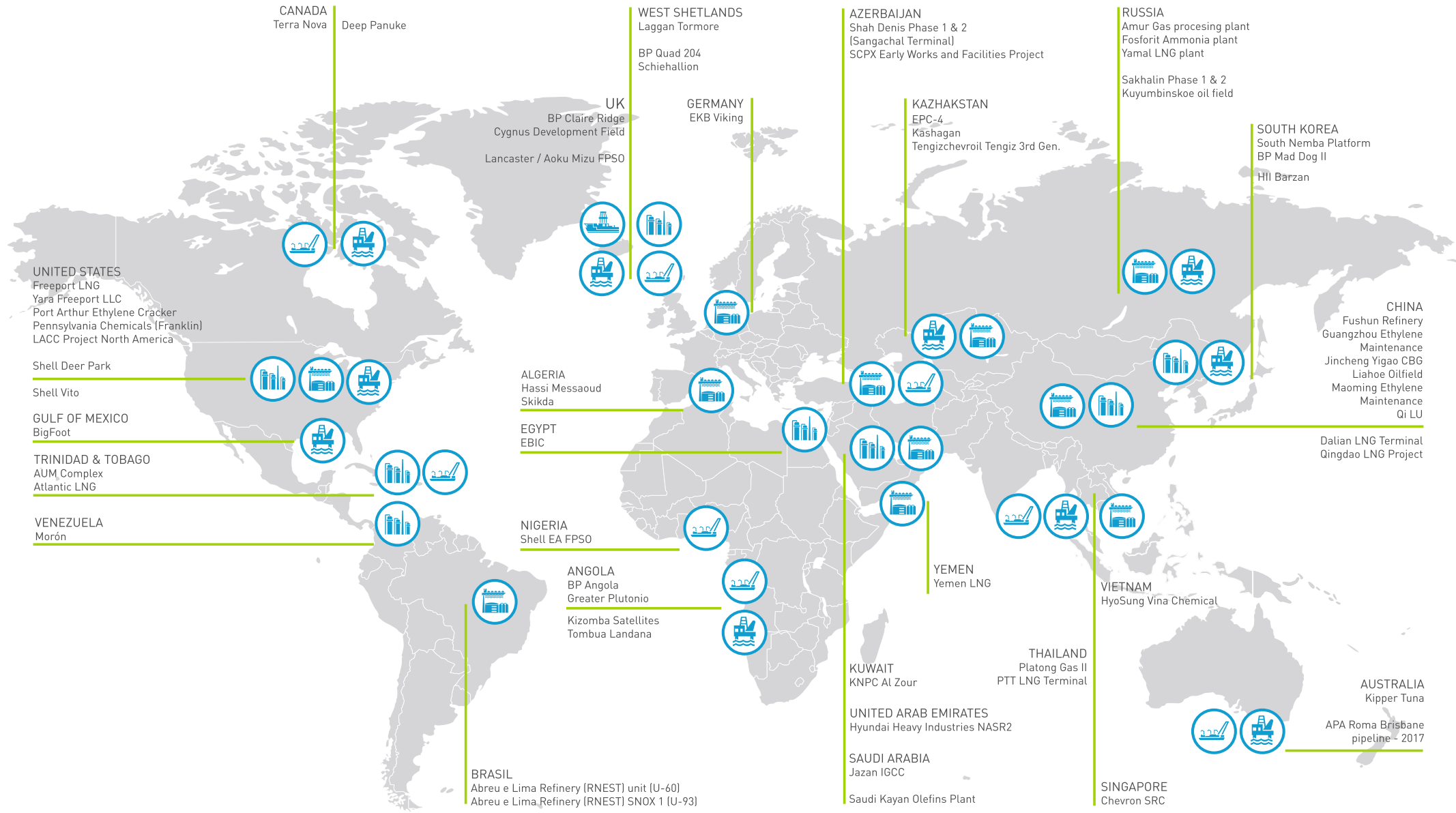
PROVEN PERFORMANCE

We're responding to global megatrends and insulating the future on iconic industrial projects. With thermal and acoustic insulation systems engineered by Armacell's dedicated Energy division.



Caring about Health, Safety & Environment

Reduced noise levels are inherently beneficial for the environment. The impact of noise from industrial plants has significant effects on health, safety and the environment. Noise induced hearing loss, compromised communication, cost of amenity and detrimental effects on wildlife are all consequences of a noisy plant. Using our ArmaSound Industrial Systems help noise attenuation in valves and pipework and should be a cornerstone in any plants' noise reduction strategy.



CANADA
Terra Nova
Deep Panuke

WEST SHETLANDS
Laggan Tormore
BP Quad 204
Schiehallion

AZERBAIJAN
Shah Deniz Phase 1 & 2
(Sangachal Terminal)
SCPX Early Works and Facilities Project

RUSSIA
Amur Gas processing plant
Fosforit Ammonia plant
Yamal LNG plant

Sakhalin Phase 1 & 2
Kuyumbinskoe oil field

SOUTH KOREA
South Nemba Platform
BP Mad Dog II
HII Barzan

UK
BP Claire Ridge
Cygnus Development Field
Lancaster / Aoku Mizu FPSO

GERMANY
EKB Viking

KAZHAKSTAN
EPC-4
Kashagan
Tengizchevroil Tengiz 3rd Gen.

UNITED STATES
Freeport LNG
Yara Freeport LLC
Port Arthur Ethylene Cracker
Pennsylvania Chemicals (Franklin)
LACC Project North America

Shell Deer Park

Shell Vito

GULF OF MEXICO
BigFoot

TRINIDAD & TOBAGO
AUM Complex
Atlantic LNG

VENEZUELA
Morón

ALGERIA
Hassi Messaoud
Skikda

EGYPT
EBIC

NIGERIA
Shell EA FPSO

ANGOLA
BP Angola
Greater Plutonio
Kizomba Satellites
Tombua Landana

BRASIL
Abreu e Lima Refinery (RNEST) unit (U-60)
Abreu e Lima Refinery (RNEST) SNOX 1 (U-93)

YEMEN
Yemen LNG

KUWAIT
KNPC Al Zour

UNITED ARAB EMIRATES
Hyundai Heavy Industries NASR2

SAUDI ARABIA
Jazan IGCC
Saudi Kayan Olefins Plant

THAILAND
Platong Gas II
PTT LNG Terminal

VIETNAM
HyoSung Vina Chemical

Dalian LNG Terminal
Qingdao LNG Project

AUSTRALIA
Kipper Tuna
APA Roma Brisbane pipeline - 2017

SINGAPORE
Chevron SRC

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All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. Armacell takes every precaution to ensure the accuracy of the data provided in this document and all statements, technical information and recommendations contained within are believed to be correct at the time of publication. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these.

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00187 | Project References | Energy | MktBrochure | 122019 | Global | EN Master

ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,100 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For product information, please visit:
www.armacell.com/energy

