



KELTECH ENERGIES LTD

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KELTECH ENERGIES LTD
AN ISO 9001, 14001, OHSAS 18001
CERTIFIED COMPANY

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ETHANE

BUTANE

PROPANE

LNG

ETHYLENE

LIN

PROPYLENE

LAR

LOX

PERLITE INSULATION SERVICES

**SOLVING
TOMORROW'S
CHALLENGES**

PERLITE INSULATION SERVICES

OUR VALUES

CUSTOMER FOCUS
OUR EXPERTISE
PROFESSIONALISM
TEAMWORK
INNOVATION
SAFETY & INTEGRITY

OUR VISION

To be the first choice integrated solutions provider for cryogenic insulation globally, applying innovative processes, advanced technologies and superior service, to deliver value beyond client expectations

OUR COMPETENCE

Our expertise begins with sourcing the perfect ore to our technical excellence, domain knowledge, global logistic support and an ability to provide end-to-end project management solutions in low temperature cryogenic insulation.

WHEN THE WORLD CALLS FOR RELIABILITY
we provide

Keltech Energies Limited is a globally preferred technology provider in the area of low temperature cryogenic insulation of LNG, Ethylene, Propylene, Butane, Propane, Ethane, LOX, LIN, LAR, Ammonia, Cold boxes and other cryogenic equipment. Established in 1977, the Company is part of the US \$ 300 million Chowgule Group having interests in mining, shipping, ship building, industrial salts, automobiles, construction chemicals, iron ore, pelletization, industrial gases, explosives, expanded perlite and exports.

Keltech, in technical collaboration with M/s Silibrico Corp., USA is among the world's leading manufacturers of expanded perlite.

Keltech combines unparalleled experience, domain knowledge and technological capabilities to build in world class quality, reliability, speed and cost effectiveness in executing projects.



DURING ON-SITE PERLITE INSULATION WORK, KELTECH DEPLOYS THE REQUIRED NUMBER OF MOBILE EXPANDERS ADJACENT TO THE STORAGE TANK BEING INSULATED.

THE PERFECT INSULATION BEGINS WITH THE PERFECT RAW MATERIAL

KELTECH SOURCES HIGH QUALITY PERLITE ORE FOR EXPANSION FROM THE TRACHYLAS MINE IN GREECE. THE ORE IS SELECTED ON THE BASIS OF COMPOSITION, PURITY, STRUCTURE, EXPANSION CAPABILITY AND END APPLICATION.

EXPANDED PERLITE CHARACTERISTICS FOR QUALITY INSULATION

- Low bulk density
- Low moisture content
- Free flowing
- Non-Inflammable
- Correct particle size
- Low thermal conductivity
- Free from organic matter

PERLITE ORE: STORAGE AT SITE

Perlite ore in 1 MT HDPE big bags with inner liners is stored in a closed room to prevent exposure to rain and moisture. The bags are stacked on wooden pallets, one above the other.

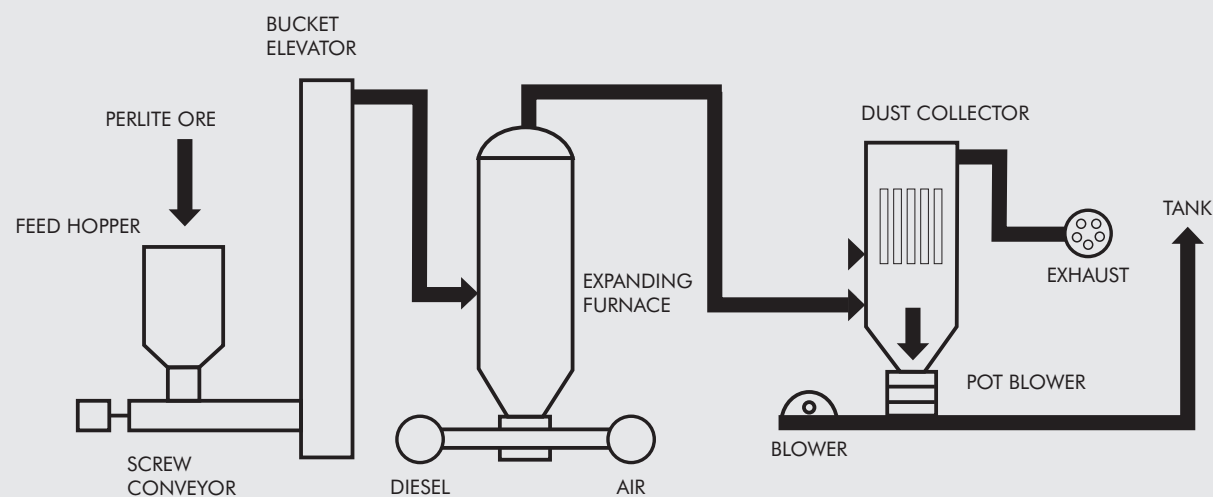
BEING A GLOBAL PROJECT MANAGEMENT COMPANY, KELTECH PROVIDES COMPLETE END-TO-END SUPPORT IN PERLITE INSULATION.

ERECTION OF EQUIPMENT AT SITE

The portable perlite expanders are of modular construction with skid mountings and can be assembled at the site in a short time.

After complete erection of all equipments inspection is carried out to ensure everything is in order and certified before commencing production.





Expansion of the perlite ore is carried out in specially designed mobile vertical furnaces operated by specially trained project team.

PORTABLE EXPANSION & FILLING

The perlite ore is transferred from the godown using forklifts and fed into the feed hopper. The variable speed ore feeder continuously meters the perlite ore into the bucket elevator, which discharges the same into the expanding furnace. The ore falls from the bucket elevator into the expanding furnace.

The expanding furnace is heated from the bottom and has an upward air flow. The expanded perlite along with the hot gases are conveyed to the dust collector system. The product discharges from the bottom of the dust collector into the pot blower and is conveyed to the annular space of the tank while the hot gases are vented from the top of the dust collector through a filter.

Samples are drawn from the sample port for periodical testing of bulk density, moisture content, size analysis etc.

The approximate dimension of each perlite expander is 30m x 5m. The approximate weight of each perlite expander is 3 MT.

EQUIPMENT TAKEN TO SITE

HOPPERS

SCREW FEEDERS

BUCKET ELEVATORS

PORTABLE FURNACES

DIESEL PUMPS

COMBUSTION BLOWERS

AIR COMPRESSORS

INDUCED DRAFT FANS

ROOTS BLOWERS

DUST COLLECTOR WITH NOMEX BAGS

TESTING EQUIPMENT

ESSENTIAL SPARES

RAIN SHELTERS FOR EQUIPMENT

STRICT QUALITY CONTROL IN OUR ONSITE TESTING LABORATORY

Quality checks are indispensable processes to ensure flawless operation. Tests are conducted in compliance with Perlite Institute / ASTM / BSEN standards

Loose density, packed density, particle size, moisture content, thermal conductivity and organic matter are tested.

KELTECH INSULATION SERVICES

- Installation of expanded perlite in the annular space between concentric vertical cylindrical tanks LNG, Ethylene, Propylene, Butane, Propane, Ethane, LOX, LIN and LAR.
- Installation of expanded perlite into air separation units (cold boxes) and small storage tanks LOX, LIN & LAR tanks.
- Live topping up of LNG and other cryogenic tanks where perlite settlement has taken place creating voids.
- Perlite concrete blocks manufacture and installation.
- Leveling concrete over bottom plate for placing perlite concrete blocks.





PERLITE FILLING AND COMPACTION

The expanded perlite is conveyed using rigid pipes and flexible hoses through perlite fill nozzles into the tank. Suitable diverters are used inside to ensure the perlite is precisely directed into the annular space during filling.

The filled perlite is compacted with using special plate vibrators from the suspended deck to achieve the required compaction.

The Keltech execution team which consist of disciplined, experienced engineers, supervisors, quality control and maintenance professionals are specially trained to follow all safety requirements of confined space working to ensure flawless, accident free operation.

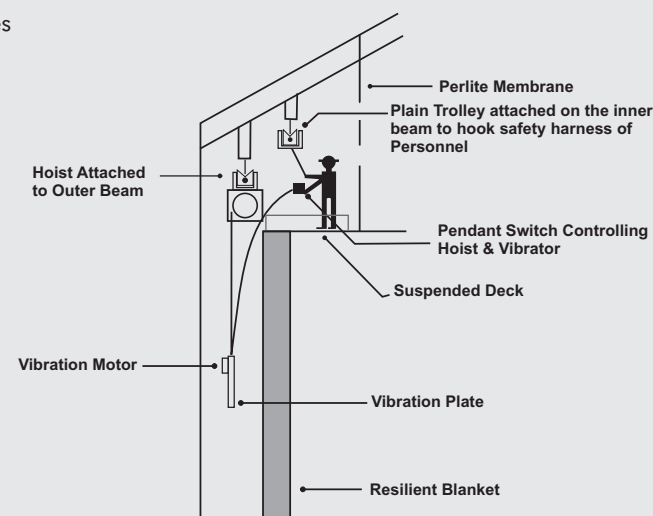
For LNG tanks where the outer tank wall is concrete, Keltech uses special plate vibrators for compaction of filled perlite causing minimum breakdown of perlite granules.

ENSURING SAFETY FOR PEOPLE AND THE ENVIRONMENT

Keltech takes great care to ensure compliance with safety, health and environmental regulations throughout the life cycle, starting from ore mining to expansion and insulation. On site furnaces have in built special filters to avoid release of incremental emissions.

The project team is highly trained in perlite insulation techniques and safety management.

All equipment are checked and tested by certified engineers.



WHY KELTECH?

Technical excellence and access to high technology perlite processing equipment enables unprecedented production and quality control.

A combination of unparalleled experience and domain knowledge, global presence and technological capabilities makes Keltech uniquely qualified to provide end-to-end support for small, medium and large projects.

Our logistics strength and experience allows us to develop on the spot solution and offer flexibility and meet diverse requirements.

Our familiarity with different types of perlite ore available worldwide and sourcing the most suitable ore ensures proper installation and zero defects.

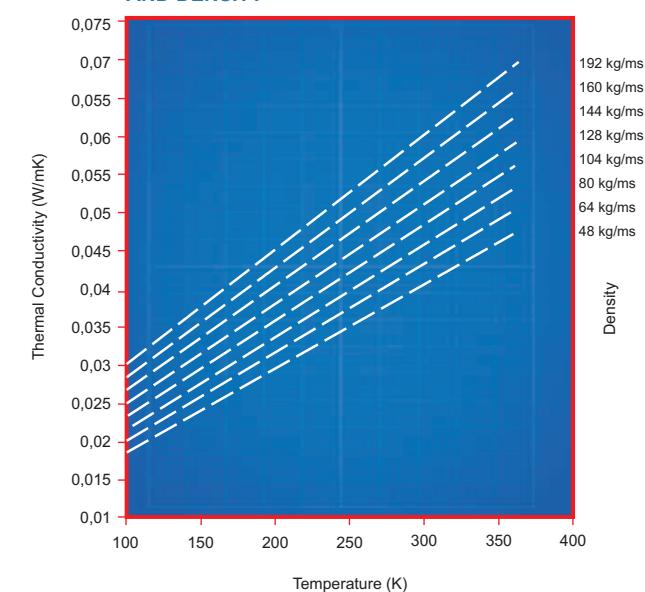
Keltech offers a complete line of perlite processing systems including highly productive and efficient perlite expanders for site jobs with a highly experienced and disciplined team to ensure unmatched project service.

In addition to equipment and systems, Keltech provides consulting services in the planning and installation of expanded perlite and the evaluation of various perlite ore deposits.

Successful projects and continued support to clients have been key to Keltech's success.

Keltech is an ISO 9001 & 14001, OHSAS 18001 Certified company and is a member of the Perlite Institute Inc, USA.

THERMAL CONDUCTIVITY OF EXPANDED PERLITE AS FUNCTION OF THE TEMPERATURE AND DENSITY



CRYOGENIC JOBS EXECUTED BY KELTECH

CUSTOMER	LOCATION	QUANTITY	EQUIPMENT	YEAR	JOB
Speedo Shanghai, China Client: CNOOC, Tianjin, China	Tianjin, China	440 MT	LNG Tanks (2 Nos)	2014	Site expansion & Filling
Inox Air Products Ltd, Pune	Inox Air Products Ltd. Maharastra, India	43 MT	Cold Box	2013	Supply of Perlite & Filling
Inox Air Products Ltd, Pune	Inox Air Products Ltd, Pattancheru, India	43 MT	Cold Box	2013	Supply & Filling of Perlite
Lloyds Insulations Ltd, Delhi Client: NFL, Nangal	Punjab, India	33 MT	Cold Box	2012	Supply & Filling of Perlite.
Tecnicas Reunidas, Spain CNOOC Guangdong LNG Co., Ltd.	Zhuhai, China	1930 MT	LNG Tanks [3 Nos]	2013	Site Expansion & Filling
Vijay Tanks & Vessels Limited, Owner (ONGC Petro Additions Ltd.	Dahej, India	440 MT	Ethylene Tanks (2 Nos)	2013	Site Expansion & Filling
Petro China Dalian LNG Co. Ltd., Client : China Huanqui Contracting & Engineering Corporation, China	Dalian-China	501 MT	LNG Tank (1 No)	2012	Site Expansion & Filing
CNOOC Zhejiang Ningbo LNG Co., Ltd. Client : TGE/Speedo Shanghai, China	Ningbo-China	1348 MT	LNG Tanks [3 Nos]	2012	Site Expansion & Filling
Petronet LNG Ltd. Client: IHI Coroporation,	Kochi, India	1344 MT	LNG Tanks (2 Nos.)	2012	Site Expansion & Filling
Petro China Dalian LNG co. Ltd., Client : China Huanqui Contracting & Engineering Corporation, China	Dalian, China	1260	LNG Tanks (2 Nos.)	2011	Site Expansion & Filling
Essar Steels Hazira	Hazira, India	1200 MT	Air Separation Unit [3 Nos]	2011	Site Expansion & Filling
AISCO, Yemen	Aden – Yemen	135 MT	Air Separation Unit	2010	Site Expansion & Filling
Haldia Petro Chemicals Ltd.	Haldia, India	98 MT	Cold Box 2 Nos.)	2009	Supply Removal & Filling Expanded Perlite
Rabigh Development Project, Client: Whessoe Al Rushaid Co Ltd.,	Rabigh, Saudi Arabia	1040 MT	Ethylene & Propylene Tanks [4 Nos]	2008	Site Expansion & Filling
Yansab Olefins Project. Client: Cape R B Hilton	Yanbu, Saudi Arabia	780 MT	Ethylene & Propylene Tanks [2 Nos]	2008	Site Expansion & Filling
Goyal MG Gases Pvt. Ltd.,	Raipur, India	137 MT	Air Separation Unit	2008	Supply & Filling of Expanded Perlite
Praxair India Pvt. Ltd.,	Durgapur, India	225 MT	Air Separation Unit	2008	Supply & Filling of Expanded Perlite
Goyal MG Gases Pvt. Ltd.,	Durgapur, India	119 MT	Air Separation Unit	2007	Supply & Filling of Perlite
Praxair India Limited,	Hospet, India	160 MT	Air Separation Unit	2006	Supply & Filling of Expanded Perlite
Goyal MG Gases Pvt. Ltd,	Asansol, India	121 MT	Air Separation Unit	2006	Supply & Filling of Expanded Perlite
Chemplast Sanmar Limited, Client: Vijay Tanks & Vessels, Baroda	Karaikal, India	96 MT	Ethylene Tank (1 No)	2006	Site Expansion & Filling
Petronet LNG Project, Client: Vijay Tanks & Vessels, Baroda	Dahej, Gujarat, India	1100 MT	LNG Tank (2 Nos.)	2003	Site Expansion & Filling

