

Application:
PETROCHEMICAL REFINERY,
AUSTRALIA



HIL Limited is a part of the CK Birla group, a US\$ 2 billion conglomerate operating across 5 continents. Our team of dedicated experts work tirelessly to invent technologies and processes, setting standards that others try to match.

HIL Limited, a pioneer in green industrial building products, develops, manufactures and markets thermal insulating material under the brand name HYSIL for heat intensive industries and passive fire protection systems.

HYSIL, a revolutionary brand in green industrial insulation, is a pre-formed, high temperature, abuse-resistant pipe and block insulation with exceptional structural strength. Composed of Hydrous Calcium Silicate (Calsil), it is designed for use on systems operating up to 1100°C. It is inorganic, non-combustible, eco-friendly and meets the physical and thermal property requirements of ASTM - C - 533 , BS-3958 PART II & IS Standards. HYSIL has a manufacturing facility/plant in Dharuhera, Haryana, India.

Integral to HYSIL is a distinctive formula and process that inhibits corrosion on the outside surfaces of pipe and equipment.

The HYSIL Edge

- Product tested and approved by reputed agencies viz Lloyds Register, SGS, Kaiser Aluminium (USA), and CERAM Testing (Denmark)
- Assured substantial energy saving through reduction in thermal losses. Superior thermal performance observed between 250 °C to 1100 °C
- No binders to burn out; no loss of insulation integrity
- Low drying shrinkage and good thermal stability
- Long life - need not be replaced for up to 20 years
- No harmful gas emissions or smoke during the first combustion
- Excellent resistance to mechanical vibrations
- Completely load-bearing
- Free from asbestos fibers, amiantus or other harmful materials
- Excellent workability



Application:
PETROCHEMICAL REFINERY,
SRI LANKA



High Efficiency



Energy Saving



Recyclable



Zero Maintenance



Major Applications

Power Plants

Boilers, Steam Pipelines, Turbines and Chimneys

Fertilizer, Refinery and Petrochemical Industry

Reformer, Gas Crackers, Heaters, Boilers, Steam and Process Pipe lines and Fuel Oil Lines

Iron and Steel Industry

Blast Furnace Stoves, Bustle Pipes, Reheat & Annealing Furnaces, Waste Heat Boiler, Roof Tops, Regenerators, Flue Gas Ducts, Doors of Coke Oven Batteries, Lime Kilns, After Burning and Dust Settling Chambers of Sponge Iron Plants

Aluminium Industry

Reduction Cells (Pots), Homogenizing and Holding Furnaces, Alumina Calciner

Cement Industry

Preheater Cyclones, Precalcinators, Kiln Riser Ducts, Firing Hood, Grate Coolers, Tertiary Air Ducts and Flue Gas Ducts

Furnaces

Heat Treatment, Reheating and Annealing

Ceramic and Glassware

Tunnel Kilns, Glass Melting Furnaces, Regenerators and Annealing Lehrs

Sugar Industry

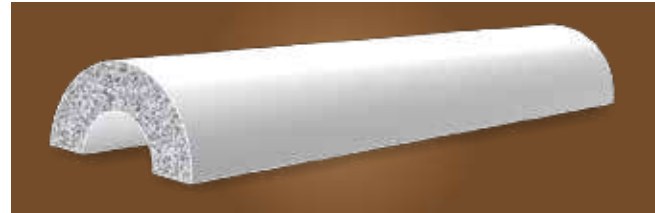
Boiler and Steam Pipelines

Passive Fire Protection

Core Material for Fire Doors, Heat Protection, Shielding around Fire Places and Stoves



HYSIL Pipe Sections



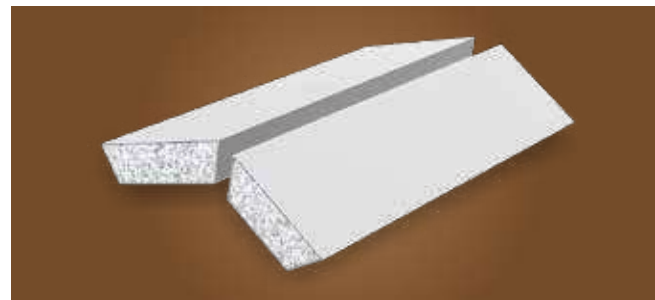
HYSIL Pipe Covering (Half Round)

- Available for pipe sizes 1/2" to 14"
- Standard length: 600 & 450 mm
- Thickness: 25, 40, 50, 65, & 75 mm



HYSIL Pipe Covering (Curved Segments)

- Available for pipe sizes 8" to 22"
- Standard length: 900, 600 & 450 mm
- Thickness: 25, 40, 50, 65, & 75 mm



HYSIL Pipe Covering (Bevelled Lags)

- Available for pipe sizes 24" and above
- Standard length: 600 mm
- Thickness: 25, 40, 50, 65, & 75 mm

Special sizes and thickness are available on request.

HYSIL Technical Specifications (Pipe Sections)

S No	Property	Units	H 800 Grad
			Typical Values
1	Temperature max service	eg C	800
2	Average Bulk density dry	Kg/m ³	220 - 280
3	Flexural strength (min)	KN/m ²	300
4	Compressive Strength reduction in thickness not to exceed under a load of: I) 415 KN/m ² dry II) 170 KN/m ² after 18 hrs immersion in water	% %	5.0 5.0
5	Heat Resistance under soaking I) Linear Reheating Shrinkage (max) 12 Hours II) Loss In Mass (max) III) Compressive Strength reduction in thickness not to exceed under a load of 345 KN/m ² (max)	% % %	2 at 800 °C 14.0 5.0
6	Thermal Conductivity at mean temperature (max) 300 °C 400 °C 500 °C 550 °C		0.078 0.097
7	Moisture contents by weight (max)	%	5.0
8	Alkalinity	pH	8 - 11

** Testing shall be carried out on Flat Blocks in case of Pipe Sections.

* Tested in accordance with BS-874 Cold Face 40 deg. C. Also as per IS 9490, water contentimeter apparatus.

HYSIL products exceed the performance requirements of IS 9428 / 8154, as well as BS-3958 Part II & ASTM C-533. The values quoted are from laboratory tests on typical samples and represent averages. They should not be used as maxima or minima in specifications.

NFL - MP, INDIA



Fire Safety

HYSIL is **non combustible** when tested in accordance with BS-476 Part 4. When tested for surface spread of flame test (Large Scale) as per BS-476 part 7 HYSIL is classified as Class One.



Fire Rated



TÜV SÜD PSB

Quality Management

CE Certified   ISO 9001:2008 Certified

HIL Limited is internationally recognized for high and consistent product quality. We aim to maintain a value-adding quality management system. We stay ahead because of our:

- Accurate identification of present and future demands and expectations from customers, as well as our post-sale follow-ups regarding product performance and customer satisfaction
- Value-adding processes management. This includes determination and follow-up on operational targets, based on analysis of data and information received from the processes and the market
- Development of product properties based on demands and specific applications of the customers
- Maintenance of necessary support processes in order to meet product demands
- Continuous improvement of the effectiveness of quality management

ORIENT CEMENT - AP, INDIA



Our Prestigious Clients

CEMENT



STEEL



ALUMINIUM



POWER



REFINING/PETROCHEMICAL



GLASS AND CERAMICS



FERTILIZER



SUGAR



FOOD



Testimonials:



Indian Oil Corporation Limited:

"We are convinced that Calcium Silicate in HP & MP steam lines has been quite useful, energy saving and best insulation material, considering the long term benefits."



Calderys

"We have been using Hysil Insulation for our various projects. We are happy with the product quality and the services rendered by the Hysil team."



Holtec Consulting Private Limited:

"Based on the evaluation and merit of the Calcium Silicate Blocks, we have been recommending Hysil Calcium Silicate Insulation Blocks to our various projects in India. Hysil is being manufactured by HIL Limited, India."

We are satisfied with the product quality and the services rendered by the Hysil team."



Larsen & Turbo Limitec (ECC Division):

"We have been using Hysil Insulation (Calcium Silicate Insulation Blocks) for our various projects/maintenance requirements. Hysil products are manufactured by HIL Limited, India."

We are satisfied with the product quality and the services rendered by the Hysil team."



VESUVIUS

"We have been using Hysil Insulation for our various projects. We are happy with the performance of the product and the services rendered by the Hysil team."



Tata Steel:

"We are using Hysil boards on a regular basis in our Blast Furnace Stoves, Maerz Kiln (lime kiln), Tunnel Furnace lining. HIL Limited's HYSIL Calcium Silicate board meets the global standard in this product category."



 **Our Clients
Worldwide**

Spain

Jordan

Bahrain

Kuwait

Nepal

Saudi Arabia

India

Bhutan

Bangladesh

Vietnam

Indonesia

Iran

Iraq

Yemen

UAE

Oman

Sri Lanka

Thailand

Malaysia

Australia

Columbia

Nigeria

Ghana

Zambia

Egypt

Ethiopia

Material Safety Data Sheet

Chemical Product and Company Identification

Product Name: HYSIL Calcium Silicate Insulation

Generic Name: Insulation (Calcium Silicate)



Chemical Composition

Composition / Information on Ingredients:

General : Hydrothermal Calcium Silicate with Mineral Silicate fibres and reinforcing fibres. The material is completely asbestos free.

Typical Composition :
Natural Calcium/ Aluminium Silicate : 5 - 10%
Cellulose Fibres : 2 - 5 %
Hydrothermal Calcium Silicate : Balance

Physical and Chemical Properties:

Boiling Point : N/A
Vapour Pressure : N/A (solid at high temperature)
Water Solubility : Insoluble (less than 0.1 g/L)
Ph : 9.0 - 9.5
Evaporation rate : N/A
Melting Point : >1400°C



Hazards Identification

Emergency Overview

Appearance and Odor:

Odorless, Off White pipe or block insulation with opaque coloring throughout as a visual marker to indicate this is an **asbestos-free product**.

This product under normal conditions of use, is not expected to create any unusual emergency hazards. However, cutting, sawing, or abrading may increase the risk of personnel exposure.

Inhalation of excessive amounts of dust created when fabricating, cutting, or other mechanical alterations of the product may cause temporary upper respiratory irritation and/or congestion - remove affected individuals to fresh air.

Skin irritation may be treated by gently washing affected area with soap and warm water.

Eye irritation may be treated by flushing eyes with large amounts of water. If irritation persists, contact a physician.

Potential Health Effects Summary

Breathing dust from this product may cause a scratchy throat, congestion, and slight coughing.

Getting dust or fibers on the skin, or in the eyes may cause itching, rash, or redness.

Inhalation: Irritation of the upper respiratory tract (scratchy throat), coughing, and congestion may occur in extreme exposure.

Skin: Temporary irritation (itching) or redness may occur.

Absorption: Not applicable.

Ingestion: This product is not intended to be ingested or eaten under normal conditions of use. If ingested, it may cause temporary irritation to the gastrointestinal (GI) tract, especially the stomach.

Eyes: Temporary irritation (itching) or redness may occur.

Primary Routes of Entry (Exposure): Inhalation (breathing dust), skin, and eye contact.



First Aid Measures

First Aid: Inhalation

Remove to fresh air. Drink water to clear throat, and blow nose to remove dust.

First Aid: Skin

Wash gently with soap and warm water to remove dust. Wash hands before eating or using the rest room.

First Aid: Ingestion

Product is not intended to be ingested or eaten. If this product is ingested, irritation of the gastrointestinal (GI) tract may occur, and should be treated symptomatically. Rinse mouth with water then drink plenty of water to help reduce the irritation. No chronic effects are expected following ingestion.

First Aid: Eyes

Do not rub or scratch your eyes. Dust particles may cause the eye to be scratched. Flush eyes with large amounts of water for 5-15 minutes. If irritation persists, contact a medical professional.

First Aid: Notes to Physician

This product is a mechanical irritant, and is not expected to produce any chronic health effects from acute exposures. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.



Fire Fighting Measures

Flash Point:	Not applicable	Method Used:	Not applicable
Upper Flammable Limit (UFL):	Not applicable	Lower Flammable Limit (LFL):	Not applicable
Auto Ignition:	Not determined	Flammability Classification:	Non combustible
Rate of Burning:	Non combustible		

General Fire Hazard:

There is no potential for fire or explosion.

Extinguishing Media:

Use any extinguishing media appropriate for the surrounding fires.

Fire Fighting Equipment/Instructions:

No special procedures are expected to be necessary for this product. Normal fire fighting procedures should be followed to avoid inhalation of smoke and gases produced by other materials.



Accidental Release Measures

Containment Procedures:

Pick up large pieces. Vacuum dust. If sweeping is necessary, use a dust suppressant such as water. Do not dry sweep. dust accumulation or use compressed air for clean-up. These procedures will help to minimize potential exposures.

Clean-Up Procedures:

Wastes are not hazards as defined by the RCRA (40 CFR 261). Comply with state and local regulations for disposal of these products.



Storage

Storage Procedures:

Warehouse storage should be in accordance with package directions, if any. Material should be kept dry, and protected from the elements.



Personal Protection

Personal Protective Equipment:

General loose-fitting, long sleeve clothing along with hand gloves should be worn to protect the skin from irritation. Exposed skin areas should be washed with soap and warm water after handling.



Chemical Stability & Reactivity Information

Chemical Stability: This is a stable material. This product is not reactive.

Hazardous Decomposition: None.

Hazardous Polymerization: Will not occur.



Regulatory Information

No special labelling is required for this material under any current legislation.



Toxicological Information

Acute Toxicity

General Product Information: The primary acute health effects of this product include mechanical irritation of the skin and eyes and skin dryness as a result of contact with dust and fiber.

Carcinogenicity

General Product Information: OSHA, NTP, IARC, and ACGIH have not classified this product in its entirety as a