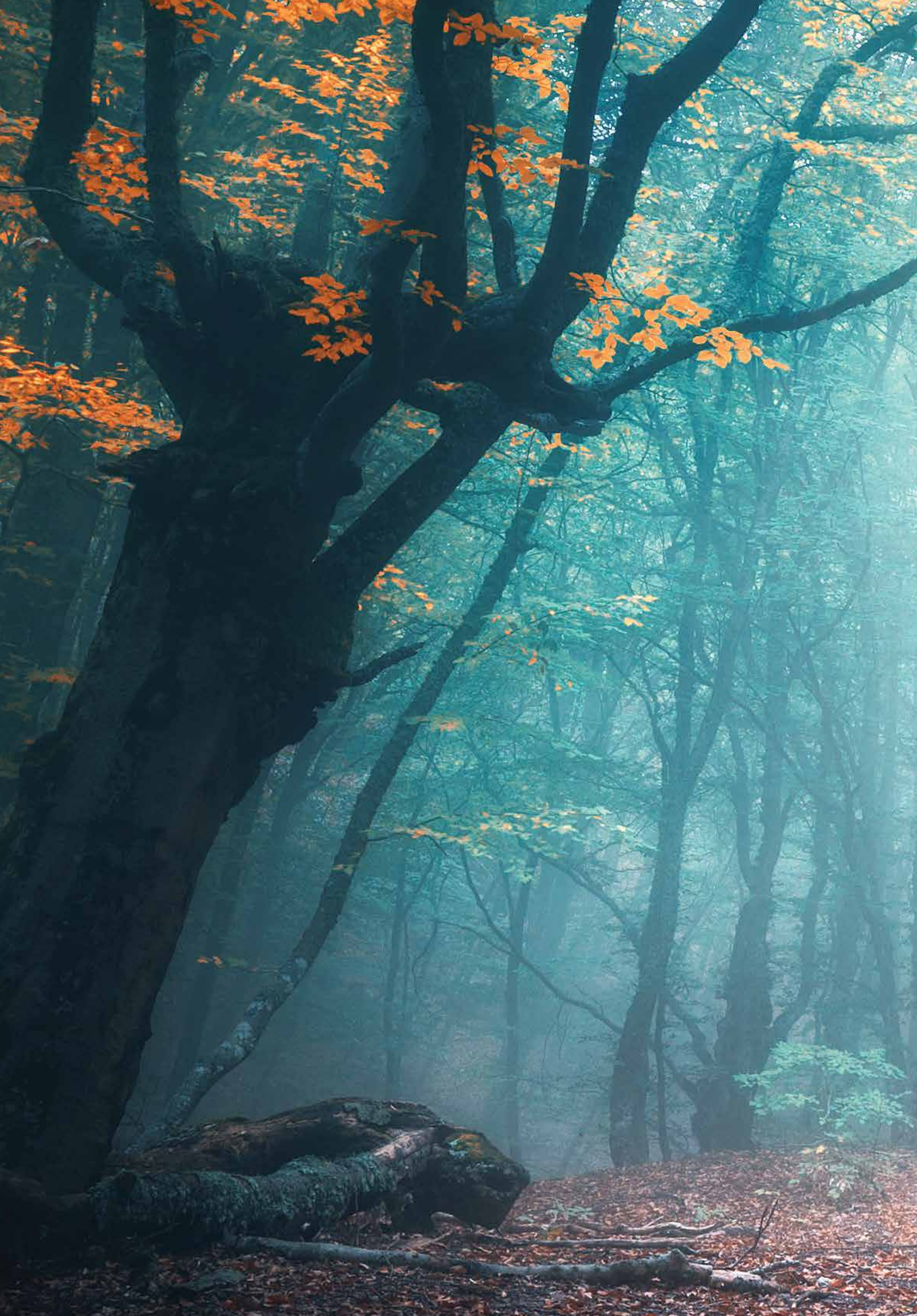


# INDUSTRY INSULATION

Energy efficient solutions and services customized to your project.





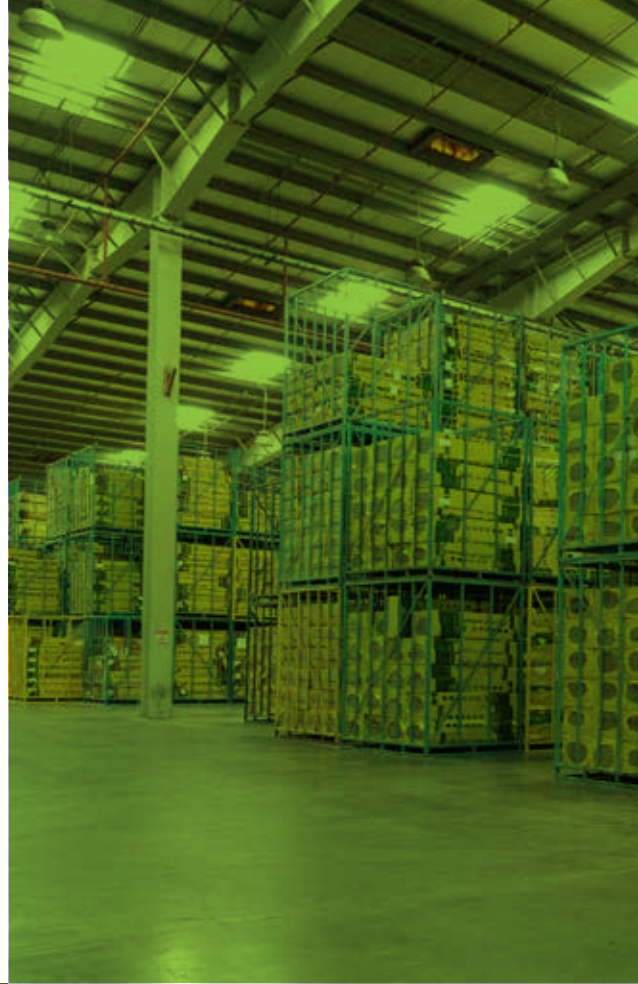
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# WE'RE **THE LEADERS** OF MINERAL WOOL **INSULATION** IN MIDDLE EAST

For over 43 years, we're manufacturing and supplying insulation materials to most of projects in GCC and other 35 countries

We've 6 Sales offices in different GCC countries to provide our customers with the best experience possible



## **STONE WOOL FACTORY IN SAUDI ARABIA**



# GLASS WOOL FACTORY IN KUWAIT



# ISOVER TOOLS AND SERVICES



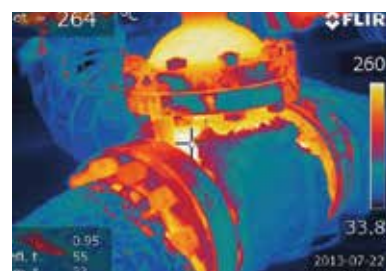
## How ISOVER can help you to identify insulation potentials?

**KIMMCO-ISOVER** has long-term proven expertise in industrial insulation and provides thermal audits, calculation tools and high performing innovative products to seize the enormous saving potentials

## **KIMMCO-ISOVER** TIPCHECK THERMAL AUDITS IN INDUSTRY PLANTS

**KIMMCO-ISOVER** perform a thermal audits service called Technical Insulation performance Checks (TIPCHECK) through a certified engineers evaluate insulation systems of existing facilities, planned projects or retrofits and demonstrate how more efficient insulation could save energy, save money, contribute to a cleaner environment through reduced CO<sub>2</sub> emissions, improvements of process efficiency & safety risks to personnel and equipment with a thermography and calculations saving potentials in industrial plants following the **Eiif** Standard.

Together with the customer we identify an action and priority plan and can calculate not only energy savings but also payback and amortisation times.





## ISOVER Tech Calc 2.0 Thermal calculations mobile, fast and more advanced.

The professional tool for all thermal calculations in technical insulation - now also mobile, faster and even more advanced! Calculating heat loss, surface temperature, required insulation thickness, economic insulation design was never easier.

TechCalc 2.0 with a new interface guides you in 5 easy steps towards clear, precise and standard conform results. It works with open databases to give you full flexibility on use of different insulation materials and products but always according to principles of ISO 12241, ISO 23993, VDI 2055, ASTM C 680 standards and guidelines .

Available already in 8 languages and 11 country versions with locally adapted data it is the perfect tool for planners, designers, contractors and all persons involved in thermal insulation design.

For more information and 30 days free licence please visit



[www.isover-technical-insulation.com](http://www.isover-technical-insulation.com)

Cell phone: +966 544651541

## ISOVER EcoTech - OPTIMISING TOTAL COST OF OWNERSHIP (TCO) DESIGN

With **ISOVER** EcoTech our industry insulation experts are able to build a customers plant according to energy efficient insulation design.

By using plant's specific input different insulation designs can be compared optimizing total cost of ownership , showing financial payback and amortization times. ISOVER EcoTech helps planners, designers, contractors to upgrade insulation design to reach cost efficient and sustainable insulation standards by reducing heat loss showing clear financial benefits.



# THERMAL AND ENERGY SAVINGS



## ENERGY EFFICIENCY - INDUSTRY INSULATION UNTAPPED POTENTIAL

**ISOVER** identified together with EIIIF and the Ecofys study a tremendous energy savings potential of industry insulation in Europe of more than 620 PJ. As a consequence, 15 coal-fired power plants of 500 MW could be switched off, if uninsulated areas would be insulated and insufficient or damaged insulation be replaced.

Industrial insulation is a Best Available Technique, which could help EU28's industry to reduce its total energy consumption by 4%. And usually the payback of the insulation investment is less than 2 years, sometimes even less than 1 year.

All this is stated in the Ecofys Study: "Climate protection with rapid payback" initiated by the European Industrial Insulation Foundation (EIIIF), of which **ISOVER** is a founding member.





## HOW COULD WE INCREASE THE ENERGY SAVING?

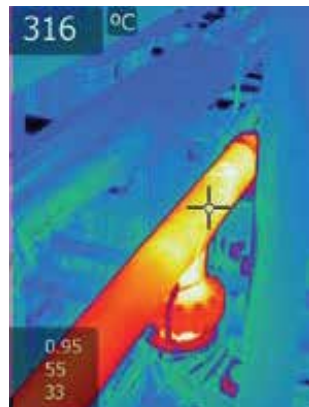
Thermal insulation specifications follow today often only personal protection (minimum hot surface temperature) requirements or outdated static heat loss restrictions. Compared to building regulations, insulation thicknesses in industry are equal or lower while temperature differences are unequally higher.

Huge potential also exists in current industry plants and maintenance. Parts of the equipment are uninsulated, damaged and not replaced. Insulation thickness tables are outdated, still following energy price levels of the last decades.

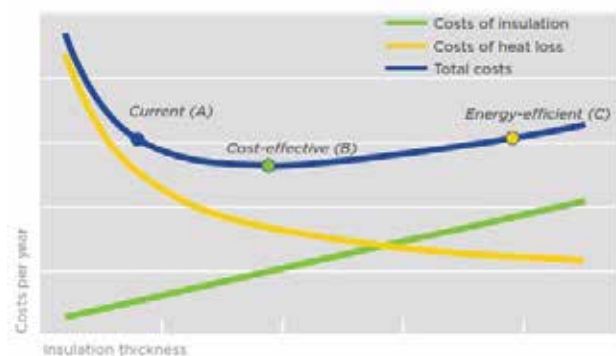
## HOW CAN INSULATION DESIGN BE CHANGED?

Insulation is still seen as a cost rather than an investment. And often the current practice is not even at a today's cost-effective optimum not to mention a sustainable, energy-efficient level.

By applying standards like ISO 12241 ,VDI 2055 or or ASTM C 680 economic insulation thicknesses can easily be calculated. If today's costs are shifted from higher heat loss costs to higher insulation investment/maintenance costs, 75% of the total insulation potential can already be seized without additional efforts.



**Total costs of insulation depending on heat loss costs versus costs for improved insulation**



The background of the page is a photograph of an industrial facility, likely a refinery or chemical plant. It features a complex network of large, metallic pipes, some of which are wrapped in insulation. There are also various pieces of machinery, including what appears to be a large valve or pump. The lighting is somewhat dim, with highlights on the metallic surfaces. The overall color palette is dominated by greys, blacks, and the bright yellow of the text box.

# RIGHT SOLUTIONS

FOR INDUSTRIAL  
APPLICATION  
ADAPTED TO YOUR  
NEEDS

**KIMMCO-ISOVER** understands the demands and specifics of industry related insulation projects. Together with you our experts identify the right solutions to bring value added to your customers at any stage of the project.



### **PLANNERS AND DESIGNERS:**

With our long-term competence, services and tools together with an industry adapted and certified product portfolio we help you to plan and optimize the design of insulation systems in terms of costs and efficiency.

### **END-USERS AND PLANT OPERATORS:**

**KIMMCO-ISOVER** TECH insulation solutions are sustainably fulfilling your demands of process safety and personal protection but also help you to cut costs by reducing heat loss and CO2 emissions improving the plant's energy efficiency.



### **INSTALLERS AND CONTRACTORS:**

We provide you with high performing, cost-efficient and easy-to-use insulation solutions that you can trust in – no matter if for quick maintenance, demanding turnaround or new projects locally or with international scope.

### **TECHNICAL INSULATION DISTRIBUTORS:**

**KIMMCO-ISOVER** TECH insulation solutions are satisfying high-quality demands of your customers and are optimized to reduce transport and storage space, costs and energy to improve service time and reduce capital costs.



# RIGHT SOLUTIONS FOR INDUSTRIAL APPLICATION

**KIMMCO-ISOVER** offers insulation solutions for thermal, fire, sound and corrosion protection for any industrial application no matter if in power generation, oil & gas or process industry.

From cryogenic tanks to process pipe-lines and vessels to high-temperature boilers or special equipment's **KIMMCO-ISOVER** solutions provide you with a safe, comfortable and sustainable answer to your project's specific needs.



# RIGHT SOLUTIONS FOR INDUSTRIAL APPLICATION

**KIMMCO-ISOVER TECH** offers you the widest product and mineral wool material range optimized for all process temperatures from cryogenic, standard, medium to high temperatures up to 750°C.

Take the best advantages of each mineral wool type that best fits each application demand.

Benefit from a wide selection of product forms adapted to the insulation surface.

**Cryogenic temperature insulation**

**-200 °C**

**CRYOLENE**

**Standard temperature, sound insulation**

**250 °C**

**TECH Glasswool**

**High temperature, efficient / mechanical insulation**

**400 °C**

**> 700 °C**

**TECH Stonewool**

## KIMMCO-ISOVER CRYOLENE AND TECH GLASSWOOL PRODUCTS




The right solutions for cryogenic and standard temperatures as well as acoustic insulation: light, flexible and resilient.



## ISOVER TECH STONEWOOL PRODUCTS

The right solutions for medium to high temperatures and mechanical demands for high compressive strength: robust, economic and proven.

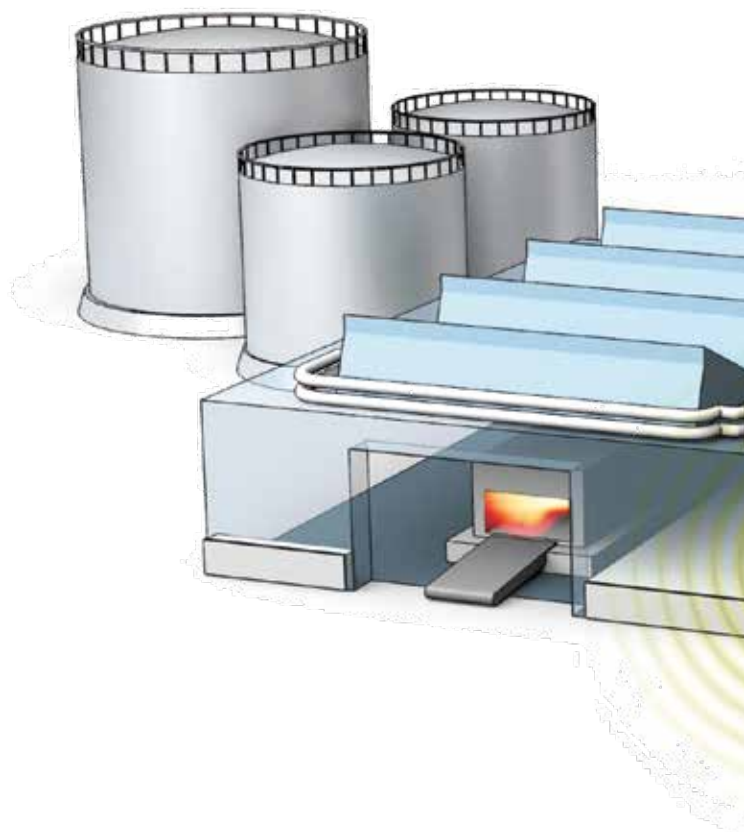


-  Excellent thermal insulation
-  Optimal sound insulation
-  Unique lightness
-  Maximum flexibility
-  Effective fire protection
-  Cost effective solutions
-  High compressive strengths
-  High compressive strengths

# APPLICATION RANGE FOR INDUSTRIAL

**KIMMCO-ISOVER** has worked closely with industrial process designers, operators and contractors to develop a range of industry solutions that meet any insulation requirement:

- Providing a choice of products that meet demands for flexibility and ease of installation,
- Are able to cope with the daily stresses of expansion and contraction, vibration and fluctuating temperature,
- On tanks, vessels, pipes and other process equipment's in power generation , oil & gas, chemical and other processing industry.





## PIPEWORK

Pipework systems designed to transport liquids and gases are an integral part of any industrial process. Pipe insulation is essential to ensure process and media stability, reduce heat loss and energy costs, provide personnel and corrosion protection.

**KIMMCO-ISOVER** TECH pipe solutions are the perfect choice to address all of these requirements – providing thermal, sound insulation and fire protection within a single product. They are ideal for a full scope of temperature ranges, from small to big pipe sizes.



## STORAGE TANKS

Storage tanks in industry are as variable in size, shape and media temperature as the processes they support. However, they all need effective insulation that meets the requirements in terms of maintaining temperatures stability, preserving heat and cold, and satisfying all safety requirements, such as protecting personnel from hot or cold surfaces.

**KIMMCO-ISOVER** therefore offers a wide choice of efficient and flexible TECH solutions for the insulation of tank walls and roofs, requiring support structures or not.



## BOILERS, HEATERS AND VESSELS

Boilers, heaters, vessels and industrial ovens place very high demands on insulation systems operating at high temperatures.

While personnel protection is usually considered in thermal specifications, economic and sustainable design to improve efficiency, reducing energy consumption and CO2 emissions often still needs to be adapted .

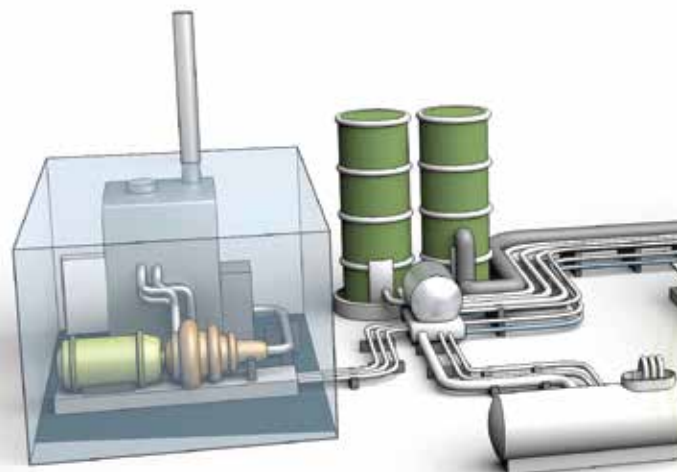
**KIMMCO-ISOVER** supplies flexible, light and efficient TECH range products that are usable up to 750 °C optimizing heat loss with less thickness needs when having space constraints.

# APPLICATION RANGE FOR INDUSTRIAL EXHAUST DUCTS AND STACKS

Insulation of flue gas or exhaust duct systems is vital to a plant's energy and process flow management. Thermal insulation is key to reduce heat loss and protecting personnel.

Even more important is the control of flue gas temperature to prevent condensation and corrosion. High flow speeds, pressures and turbulence are a prime cause of noise requiring efficient sound insulation.

**KIMMCO-ISOVER's** flexible and space saving TECH range provides the all in one solution, offering a range of different performance and temperature levels for rectangular and circular or uneven structures.





# APPLICATION RANGE FOR INDUSTRIAL PROCESS EQUIPMENT

In addition to the main industrial process components there are many other elements of process equipment that are particularly challenging in terms of thermal and acoustic insulation as well as from an installation point of view.

Heat exchangers, small vessels and turbines are just some examples of the areas for which **KIMMCO-ISOVER** TECH range is able to provide standard, flexible and multi-purpose insulation products, as well as customized solutions to meet individual customer needs.



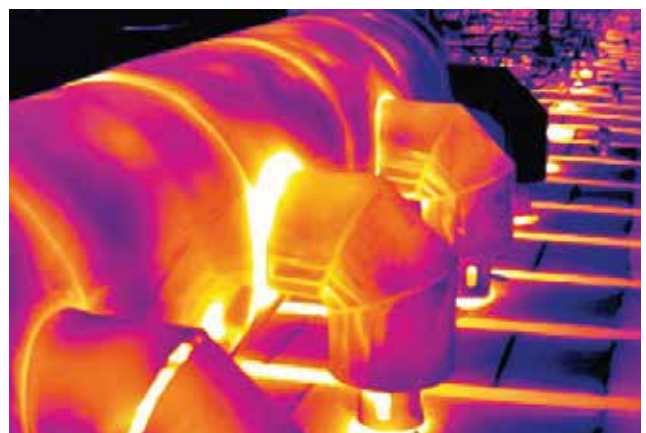
# THERMAL AND ENERGY SAVINGS

## THERMAL INSULATION IN INDUSTRY - LESS IS MORE



Thermal insulation is required for safety and security, to reduce heat loss and to increase sustainability of processes. **KIMMCO-ISOVER** offers the right solutions for all these requirements.

There are a number of key reasons for thermal insulation of industry equipment and processes:





## **PERSONNEL PROTECTION**

To protect personnel from contact injuries and skin burns when working close to hot pipe and equipment surfaces e.g. maximum surface temperature requiring 60°C or 35°K above ambient.

## **PROCESS SECURITY**

To maintain temperature limits in industrial processes for transported or stored liquid or gaseous media.

To prevent corrosion due to high humidity levels or temperatures below dew point.

To prevent pipework and equipment from freezing in low ambient temperatures.

## **REDUCTION OF HEAT LOSS COSTS**

To reduce heat loss or gain and therefore reduce the amount of energy needed to maintain process equilibrium and save cost (heat loss costs can be easily calculated on the basis of ISO 12241 and industry standards such as VDI 2055, ASTM C680 with KIMMCO SOVER thermal calculation software TechCalc 2.0).

Optimizing the initial insulation will reduce installation costs and provide maximum energy savings throughout the lifetime of the installation.

## **REDUCTION OF ENVIRONMENTAL IMPACTS**

To optimize insulation efficiency will maximize the potential for CO<sub>2</sub>-saving (and reduce costs for CO<sub>2</sub> emission certificates), as well as provide a buffer against future rising energy costs.

To use proper insulation materials, and new insulation systems, such as low emissivity cladding systems, will help to maximize potential energy savings and improve environmental protection on industrial equipment.

## **IMPROVED SUSTAINABILITY THROUGH MAXIMUM THERMAL PERFORMANCE.**

The **KIMMCO-ISOVER TECH** product range is designed to give optimum thermal conductivity for each application and temperature. The thermal conductivity of the insulation is measured over the full temperature scale in accordance with EN 12667, ASTM C177 for flat products and ISO EN 8497, ASTM C335 for pipe sections.

The thermal performance of ISOVER products is guaranteed by tight quality control, both internally and externally, for instance through the VDI 2055 quality scheme or other third party accreditations.

# ENVIRONMENTAL PROTECTION

## ECO-DESIGNED SUSTAINABLE PERFORMANCE



KIMMCO-ISOVER is committed to sustainability and eco-design – not only of its TECH product range or higher efficiency, especially in higher temperatures, but also for the environmental, health and safety aspects of its materials and own production processes.

### THE REFERENCE FOR SUSTAINABILITY THAT PAYS OFF

**KIMMCO-ISOVER** offers insulation solutions that help protect the climate and environment in a sustainable way.

During the last 25 years ISOVER has produced about 1.5 billion m<sup>2</sup> of insulation material. That is equivalent to a reduction of about 300 million tons of CO<sub>2</sub> emissions. **KIMMCO-ISOVER** constantly works to improve not only the thermal performance of its insulation products but also the resources necessary to manufacture them.

Therefore the positive balance of energy and emissions of **KIMMCO-ISOVER** materials is often achieved in industry application in a few days and pays off afterwards continuously – due to the inorganic material basis for the whole life-time of the installation.

**KIMMCO-ISOVER** converts about 1 m<sup>3</sup> of raw materials into up to ca. 150m<sup>3</sup> of mineral wool. **KIMMCO-ISOVER** insulation products are saving up to 250 times the energy needed during production.

Over the last 20 years, ISOVER has reduced worldwide the energy consumption by more than 20% and the water consumption in its glass wool plants by more than 30%. More than 75% of the production waste is recycled. Up to 80% of recycled glass is used as a raw material source, e.g. for glass wool production.

**KIMMCO-ISOVER** organizations are certified according to ISO 9001; most of its plants are also certified according to ISO 14001.

# CORROSION PROTECTION INCLUDED

## HUMIDITY AND CORROSION PROTECTION

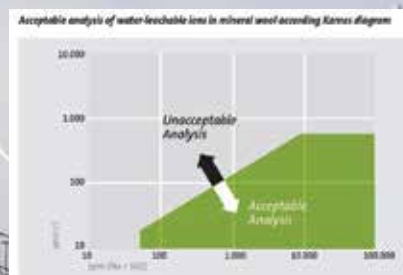


Highly alloyed austenitic steels (alloys of chrome, nickel and molybdenum) are predisposed to tensile stress corrosion (stress corrosion cracking), caused mainly by water soluble ions, such as chlorides. As temperature increases, so does the risk of stress corrosion cracking. KIMMCO-ISOVER industrial TECH products are therefore low in chlorides

### MOISTURE AND WATER REPELLENCE

Moisture and water repellence Low chloride insulation products are the basis for preventing corrosion under insulation (CUI), especially where higher temperature surfaces are involved. In addition, KIMMCO-ISOVER industrial insulation products for external use are hydrophobic and non-hygroscopic, thus limiting potential water absorption. The open cell structure allows products to dry out quickly, should they become wet, without loss of their mechanical or insulating properties.

Hydrophobic performance is tested and measured according to AGI-Q 132 & ASTM C1104, which allows for water absorption of less than 1 kgm after 24 hours. Nevertheless mineral wool products should always be stored inside and in dry conditions, in order to maintain their performance



and low chloride content. When used for outdoor applications or on cold surfaces, metal sheet jacketing or equivalent vapour barriers should always be used.

### STANDARDS AND GUIDELINE

There are different standards to define the limits for water leachable ions in insulation products

- ASTM C 795, for instance, concerns the water-leachable content of chloride ions, sodium and silicate.
- The so-called Karnes diagram defines an acceptable area which is identified as not supporting stress corrosion. All **KIMMCO ISOVER TECH** products fall within the acceptable area.
- AS-Quality (AGI-Q 132): even more demanding is the AGI-Q 132 which sets the maximum content of chloride ions at 10 ppm or 10 mg per 1 kg of insulation material. Insulation materials which satisfy this standard are certified for AS-Quality.
- Austenitic (AS) is a term which describes a particular type of crystalline steel structure. **KIMMCO-ISOVER** has certified critical TECH products for hightemperature usage as AS-Quality - giving additional safety to highly demanding constructions.

# ACOUSTIC KIMMCO-ISOVER TECH - SILENCE IS GOLDEN ACOUSTIC PERFORMANCE.



MANY INDUSTRIAL INSTALLATIONS WORK AT HIGH PRESSURE, WITH FAST MOVING MEDIA AND OFTEN TURBULENCE, ALL OF WHICH CAN CAUSE HIGH NOISE LEVELS.

Acoustic insulation in this field therefore has two main objectives:

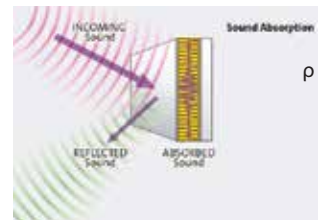
- To protect the hearing of personnel working close by.
- Particularly in urban areas, to reduce ambient sound in the local environment.

**Kimmco-Isover** mineral wool solutions are characterized by high longitudinal air-flow resistance (up to  $>100 \text{ kPa}\cdot\text{s}/\text{m}^2$ ) and uniform porosity (93-99%), resulting in high sound attenuation levels.

Their outstanding performance is a direct result of their elastic properties and low modulus of elasticity, which gives Kimmco-Isover mineral wool solutions a low dynamic toughness, and makes them superior to other insulants, such as plastic foams.

## SOUND ABSORPTION

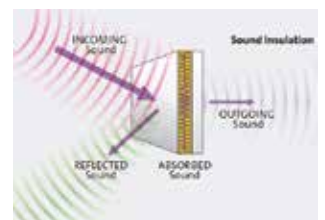
**KIMMCO-Isover** mineral wool products offer excellent acoustic absorption, absorbing up to 95% of sound energy at certain frequencies. The sound absorption or attenuation properties of KIMMCO Isover products (characterised by an absorption coefficient  $\alpha$ ) are listed in relevant technical data sheets.



## SOUND REDUCTION

In noisy working areas, sound reducing techniques can be used to supplement sound absorption. Sound reducing constructions using the mass-spring-mass principle, or sound capsules, can be particularly useful in reducing noise emissions from industrial processes into the ambient environment, especially in urban areas.

**KIMMCO-Isover** mineral wool with high longitudinal air flow resistance values, high elasticity and high  $\alpha$  sound absorbing values can reduce sound emissions in these constructions significantly.



# FIRE KIMMCO-ISOVER TECH - GIVING FIRE NO CHANCE



**FIRE PROTECTION  
THE RISK OF FIRE IN INDUSTRIAL  
ENVIRONMENTS IS MUCH  
HIGHER THAN IN BUILDINGS  
AND OTHER APPLICATIONS,  
PARTICULARLY WHEN  
WORKING WITH WELDING AND  
GRINDING EQUIPMENT IN HIGH  
TEMPERATURE ENVIRONMENTS  
CONTAINING FLAMMABLE AND /  
OR EXPLOSIVE MEDIA.**

In order to protect personnel and equipment it is important that all steps are taken to shield possible fire sources and prevent fires from starting.

Passive fire protection using noncombustible materials is the best way to eliminate these risks from the beginning or prevent fire from spreading.

That is why all **KIMMCO-ISOVER** industrial insulation products offer outstanding fire safety properties.



## Best-in-class

KIMMCO-ISOVER industrial insulation solutions offer 'best-in-class' fire safety properties. They are non-combustible and classified in Euroclass Group A - the very top classification for fire performance.

KIMMCO-ISOVER insulation materials will not ignite, so there is no risk of fire caused by flying sparks from welding and grinding work carried out close to the insulation. In addition, KIMMCO-ISOVER insulation materials generate practically no smoke and toxic gases, which is critically important for your employees, and for fire brigade personnel, should the worst come to the worst and a fire occur.

With KIMMCO-ISOVER TECH industry insulation solutions, you can feel safe in the knowledge that you will never be exposed to harmful gases from the insulation materials - and that you have done everything you can do to protect your plant and your business.

Single-Burning-Item (SBI-) oven for the determination of **reaction to fire class** according to EN 13501-1.



## PRODUCT RANGE - WIRE MATTS

Stone wool is ideal for many standard industrial applications as it combines good insulation performance with high-temperature operation.

**KIMMCO ISOVER** stone wool products are made from volcanic rock - a natural material present in large quantities throughout the earth. The raw materials are 97 % mineral, and include basalt, diabase and similar igneous rocks, with using a latest technology from Saint-Gobain to produce Stone Wool with a very low environmental impact (zero waste to landfill)

Stone wool is ideal for many standard industrial applications as it combines good insulation performance with high-temperature operation (up to 750 °C MST), and the low compressibility and high mechanical strength required for walk-on applications. The cost-efficient products come in a range of thicknesses and performance levels to suit different requirements.

**The strong solution - designed for your needs.**



**KIMMCO-ISOVER** has designed the flexible TECH Wired Mat stitched with galvanized or stainless steel wire on hexagonal wire mesh for flexible installation on uneven structures such as big diameter pipes, tanks and vessels, exhaust ducts and stacks which is compliance with EN 14303 and ASTM C592 standards with regards to maximum service temperature limits, thermal insulation performance, also resistance to temperature shocks, flexibility, chemical behavior and many more our product.



Characteristic	Symbol	Unit	Quantities and measured values				Standard
Thermal Conductivity	T	(°C)	100	300	500	600	EN 12 667 ISO 8301/ 8302 ASTM C177
	l	(W/m·K)	0.041 - 0.046	0.073 - 0.085	0.121 - 0.135	0.152 - 0.168	
Density	$\rho$	(kg/m <sup>3</sup> )	30 - 150				EN 1602 ASTM C167
Thickness	T	(mm)	25 - 120				EN 823 ASTM C167
Fire protection / Behaviour in fire	-	-	Non-combustible, Euro-class A1				EN 13 501-1 ASTM E136
			Fire Spread Index = 0; Smoke Development Index = 5				ASTM E84
Maximum Service Temp	MST	(°C)	EN standard: 660 ASTM standard: 750				EN 14 706 ASTM C411 ASTM C447
Chemical Behaviour	-	-	AS-Quality (chloride content < 10 ppm) Water repellent. Free of corrosion-supportive materials				EN 13 468 AGI Q 132 ASTM C871 ASTM C795

## PRODUCT RANGE - PIPE SECTION

**KIMMCO-ISOVER** offers a range of preformed concentric-rolled TECH Pipe Sections for the insulation of industry process pipelines for diameters from 21 mm to 915 mm (1/2" to 36") exhaust ducts and stacks. Pre-slit to facilitate the opening and fitting over the pipes to adapt to different temperatures needs, acoustic and fire of industry pipe insulation.

**KIMMCO-ISOVE** TECH Pipe Sections can normally be used without support structures and have a beneficial length of 1,200 mm for fast and efficient installation compliance with EN 14303 and ASTM C547 type II standards.



Characteristic	Symbol	Unit	Quantities and measured values				Standard
Thermal Conductivity	T	(°C)	50	100	200	300	ASTM C335 ISO 8497
	l	(W/m·K)	0.038 - 0.039	0.044 - 0.046	0.059 - 0.064	0.080 - 0.087	
Density	ρ	(kg/m <sup>3</sup> )	80 - 160				ASTM C302 EN 13470
Pipe Size	D	(in)	½ - 36				ASTM C302
Thickness	T	(mm)	25 - 160				ASTM C302 EN 13467
Fire protection /Behaviour in fire	-	-	Non-combustible, Euro-class A1				EN 13 501-1 ASTM E136
			Fire Spread Index = 0; Smoke Development Index = 0				ASTM E84
Maximum Service Temp	MST	(°C)	EN standard: 660 ASTM standard: 750				EN 14707 ASTM C411 ASTM C447
Chemical Behaviour	-	-	AS-Quality (chloride content < 10 ppm) Water repellent. Free of corrosion-supportive materials				EN 13468 AGI Q 132 ASTM C871 ASTM C795

# PRODUCT RANGE - SLABS

**KIMMCO-ISOVER** offers a strong and rigid stone wool slab, for the thermal and acoustic insulation in industry with a maximum service temperature of up to 750 C where higher demands are made on the temperature resistance and mechanical loads of the insulation such as roof tanks insulation, vessels, exhaust ducts , stacks, other industry equipments .



Characteristic	Symbol	Unit	Quantities and measured values				Standard
Thermal Conductivity	T	(°C)	100	300	500	600	EN 12667
	l	(W/m·K)	0.041 - 0.043	0.075 - 0.077	0.128 - 0.130	0.152 - 0.165	ISO 8301/8302 ASTM C177
Density	ρ	(kg/m <sup>3</sup> )	80 - 200				EN 1602 ASTM C303
Thickness	T	(mm)	30 - 220				EN 823 ASTM C303
Fire protection / Behaviour in fire	-	-	Non-combustible, Euro-class A1				EN 13501-1 ASTM E136
			Fire Spread Index = 0; Smoke Development Index = 0				ASTM E84
Maximum Service Temp	MST	(°C)	EN standard: 660 ASTM standard: 750				EN 14706 ASTM C411 ASTM C447
Chemical Behaviour	-	-	AS-Quality (chloride content < 10 ppm) Water repellent. Free of corrosion-supportive materials				EN 13468 AGI Q 132 ASTM C871 ASTM C795

# PRODUCT RANGE - LOOSE WOOL

**KIMMCO-ISOVER** offers TECH Loose Wool lightly-bonded stone mineral wool roll for insulation of dead spaces, joints, industrial mattresses fillings or other areas where preformed insulation materials cannot be used. TECH Loose Wool can be flexibly used for service temperatures up to 750 °C. The thermal performance will be dependent on the stuffing density and direction of the fibers towards heat source.

Characteristic	Symbol	Unit	Quantities and measured values				Standard
Thermal Conductivity	T	(°C)	50	100	200	300	EN 12667
	l	(W/m·K)	0.041 - 0.064	0.056 - 0.062	0.073- 0.080	0.094 - 103	ISO 8301/8302 ASTM C177
Density	ρ	(kg/m <sup>3</sup> )	80 - 160				EN 1602 ASTM C1574
Fire protection /Behaviour in fire	-	-	Non-combustible, Euro-class A1				EN 13501-1 ASTM E136
			Fire Spread Index = 0; Smoke Development Index = 0				ASTM E84
Maximum Service Temp	MST	(°C)	EN standard: 660 ASTM standard: 750				EN 14706 ASTM C411 ASTM C447
Chemical Behaviour	-	-	AS-Quality (chloride content < 10 ppm) Water repellent. Free of corrosion-supportive materials				EN 13468 AGI Q 132 ASTM C871 ASTM C795

# PRODUCT RANGE - ROLLS

**KIMMCO-ISOVER** offers COMFORT BROLL lightly-bonded stone mineral wool solution for thermal and acoustic insulation of various building application inside the industrial projects complying with ASTM C665 and EN 13162 standards

Characteristic	Symbol	Unit	Quantities and measured values	Standard
Thermal Conductivity	T	(°C)	24	EN 12667
	l	(W/m·K)	0.037 - 0.033	ISO 8301/8302 ASTM C177
Fire protection/ Behaviour in fire	-		Non-combustible, Euro-class A1	EN 13501-1 ASTM E136
			Fire Spread Index = 5; Smoke Development Index = 0	ASTM E84
Maximum Service Temp	-	(%)	EN standard: 660 ASTM standard: 750	EN 14706 ASTM C411 ASTM C447
Water Vapour Sorption	μ	-	< 1% by weight	ASTM C1104
Water Vapour Diffusion Resistance Factor			~ 1	EN 12086
Facing	<ul style="list-style-type: none"> <li>Aluminium foil: Faced one side with aluminium foil of (112 g/m<sup>2</sup>) reinforced with grid</li> <li>Black Glass Fabric "BGF": Faced one side with BGF foil of (60 g/m<sup>2</sup>)</li> </ul>			

# PROJECT REFERENCES



**Project:** Jazan refinery and terminal - Saudi Arabia  
**Client:** Saudi Aramco  
**Application:** Equipment's, Piping, ASU, tanks



**Project:** Yanbu III Power Plant - Saudi Arabia  
**Client:** SWCC  
**Application:** Equipment's & Piping



**Project:** Farabi Petrochemicals - Saudi Arabia  
**Client:** Farabi Petrochemical Co.  
**Application:** Equipment's & Piping



**Project:** Crude flexibility project at the Ruwais refinery - UAE  
**Client:** ADNOC  
**Application:** Oil & Gas - Equipment & Piping



**Project:** Al Fadhili Gas Plant - Saudi Arabia  
**Client:** Saudi Aramco  
**Application:** Equipment's, tanks & Piping



**Project:** IBRI Independent Power Project - Oman  
**Client:** Ad-Dhahirah Generating Co.  
**Application:** Oil & Gas - Equipment & Piping



**Project:** Alba line 6 Expansion- Bahrain  
**Client:** Alba  
**Application:** Equipment & Piping



**Project:** Lower Fars Heavy Oil Development-Kuwait  
**Client:** Kuwait Oil Company  
**Application:** Oil & Gas - Equipment & Piping

# CERTIFICATES AND VENDOR APPROVAL

أرامكو السعودية  
saudi aramco



سابك  
SABIC

iktva



معدن  
MAADEN



الشركة السعودية للكهرباء  
Saudi Electricity Company

المؤسسة العامة لتحلية المياه المالحة  
Saline Water Conversion Corporation (SWCC)



EXOVA

ISO  
9001:2015



THOMAS BELL-WRIGHT  
INTERNATIONAL CONSULTANTS



CLASSIFIED  
UL



CERTIFIED  
ISO  
9001:2015  
COMPANY



EWA  
هيئة الكهرباء والماء  
Electricity & Water Authority  
Kingdom of Bahrain

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