NICOLAIDES & KOUNTOURIS
METAL COMPANY LTD

"Industrial Waste Management Solutions and Circular Economy: Best Practices in Cyprus"

Development of construction materials from waste

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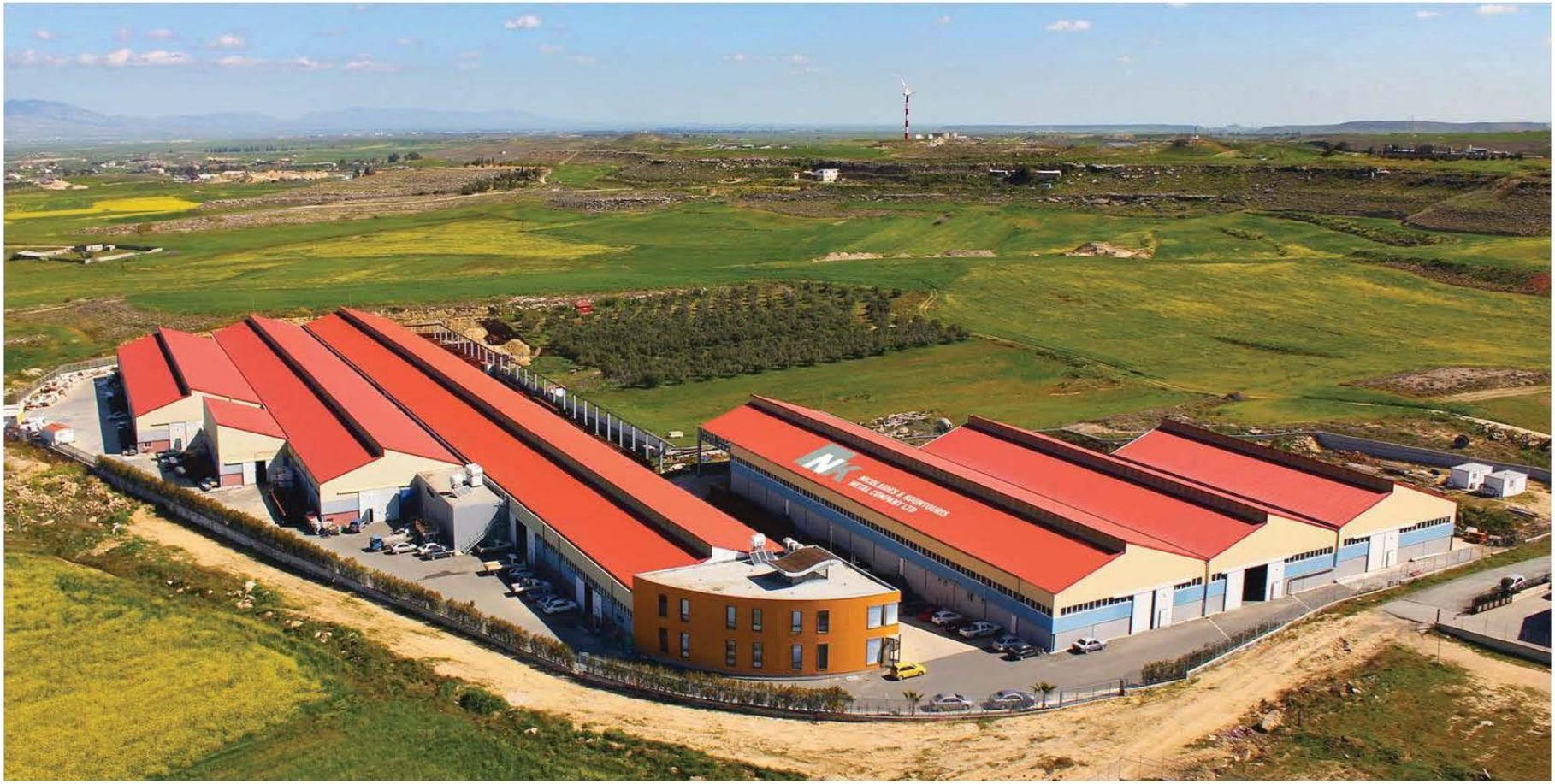
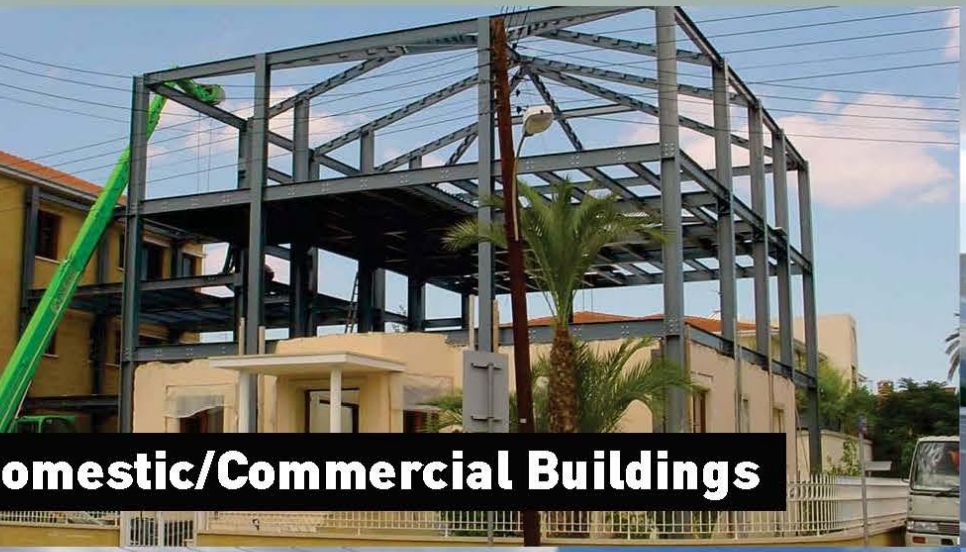
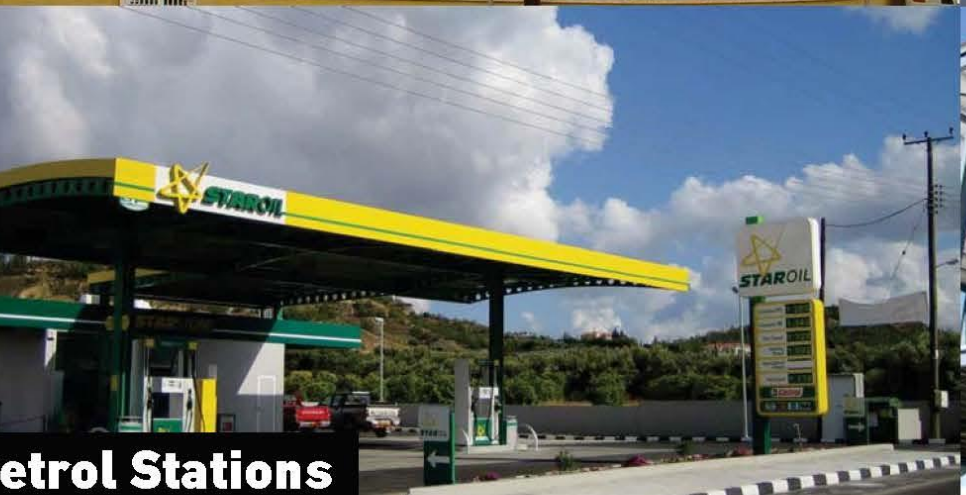
NICOLAIDES & KOUNTOURIS METAL COMPANY LTD



Various steel structures


omestic/Commercial Buildings

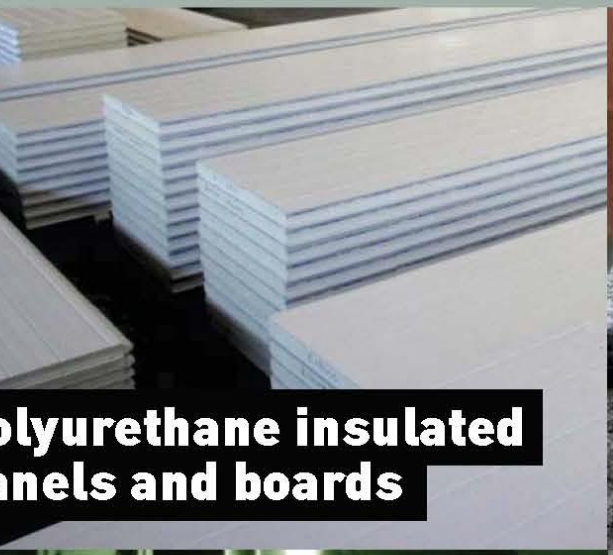

Industrial Buildings

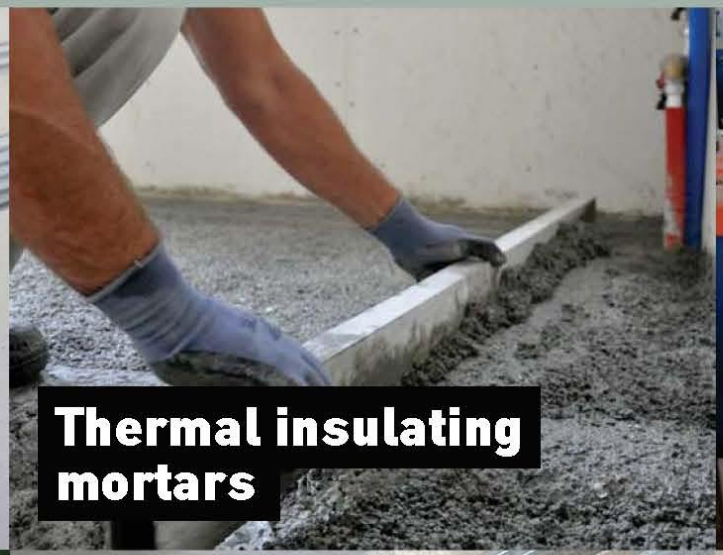


etrol Stations


Industrial Buildings

Products

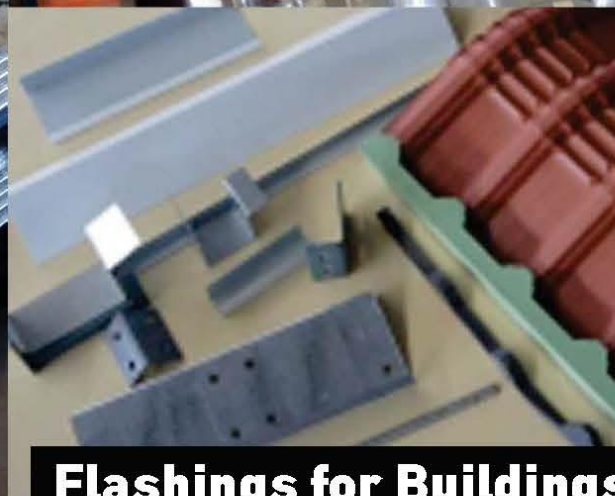

olyurethane insulated
nels and boards


Thermal insulating
mortars

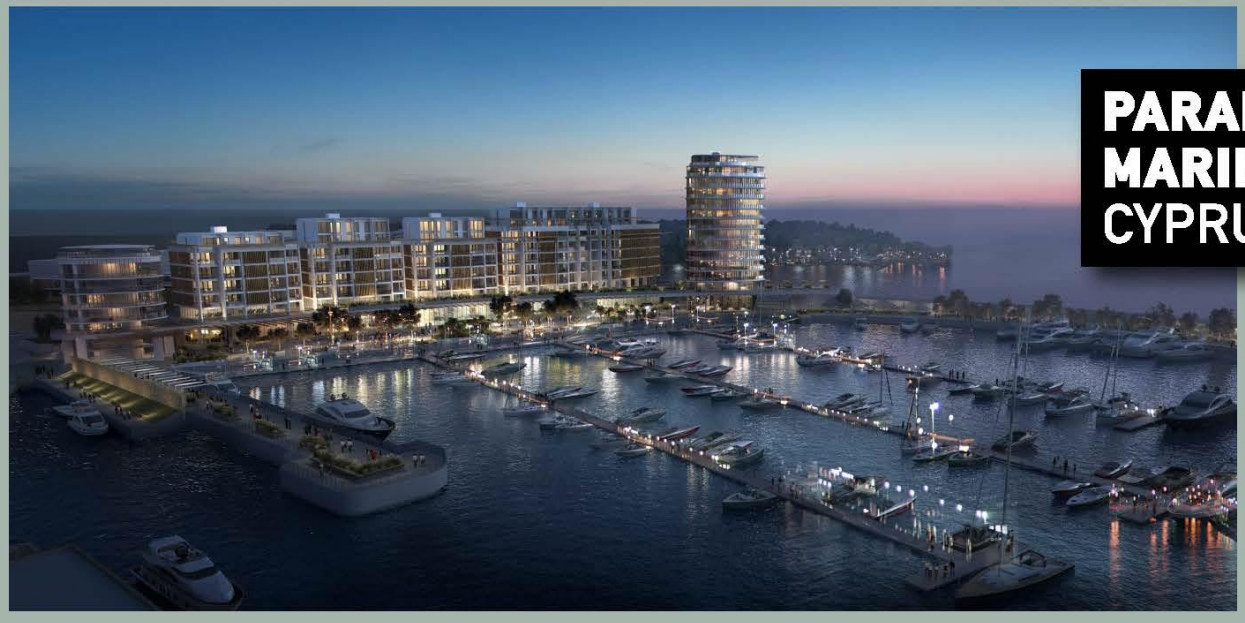

Metal tiles


apezoidal metal sheets

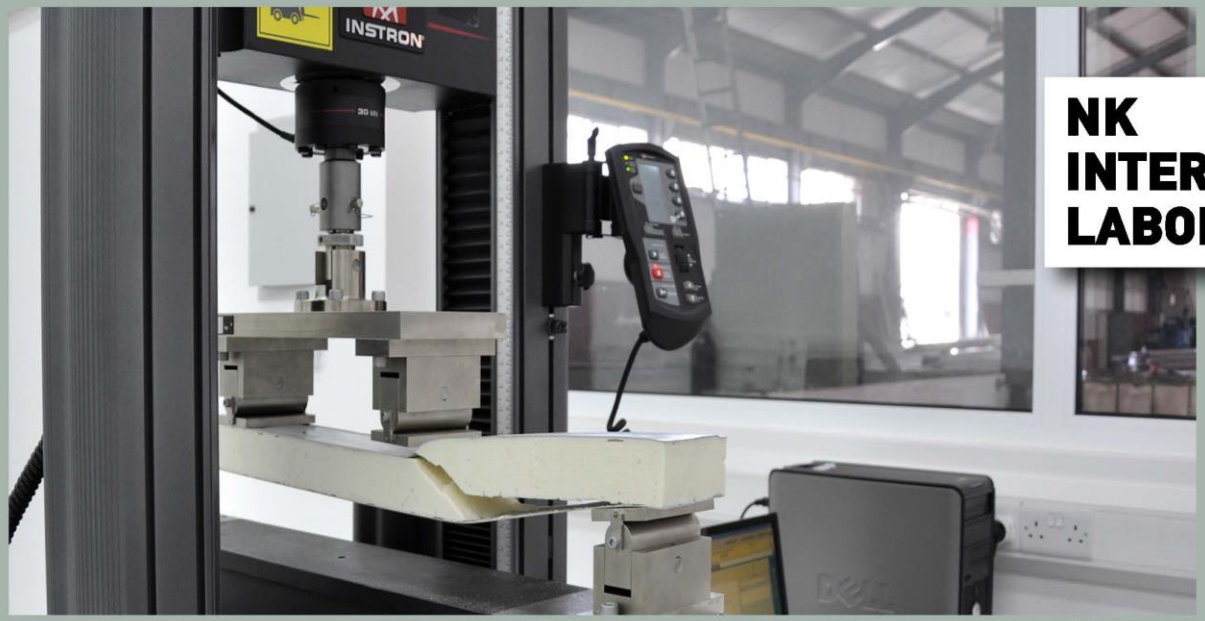

Open Sections


Flashings for Buildings

NICOSIA DESIGN CENTER

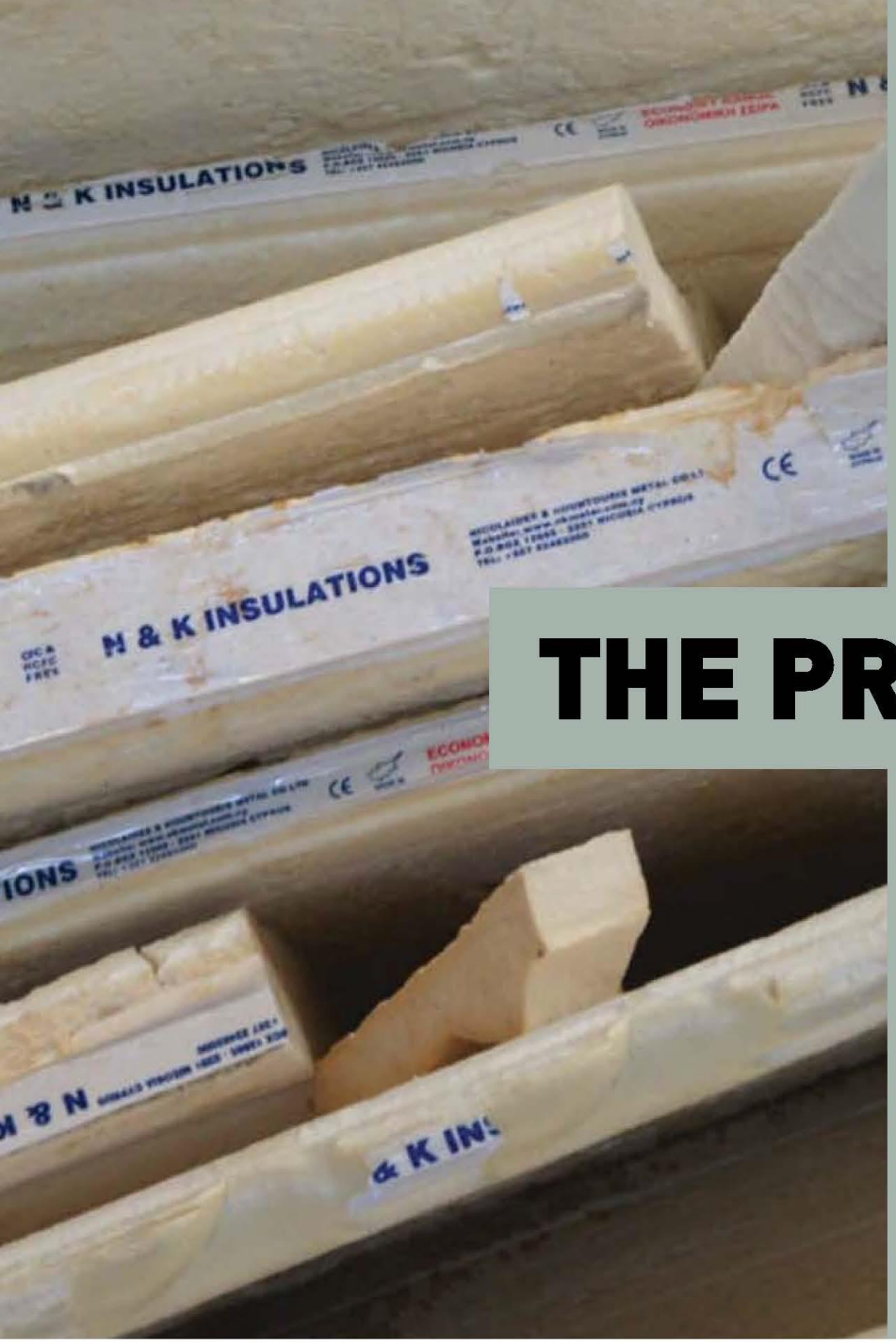


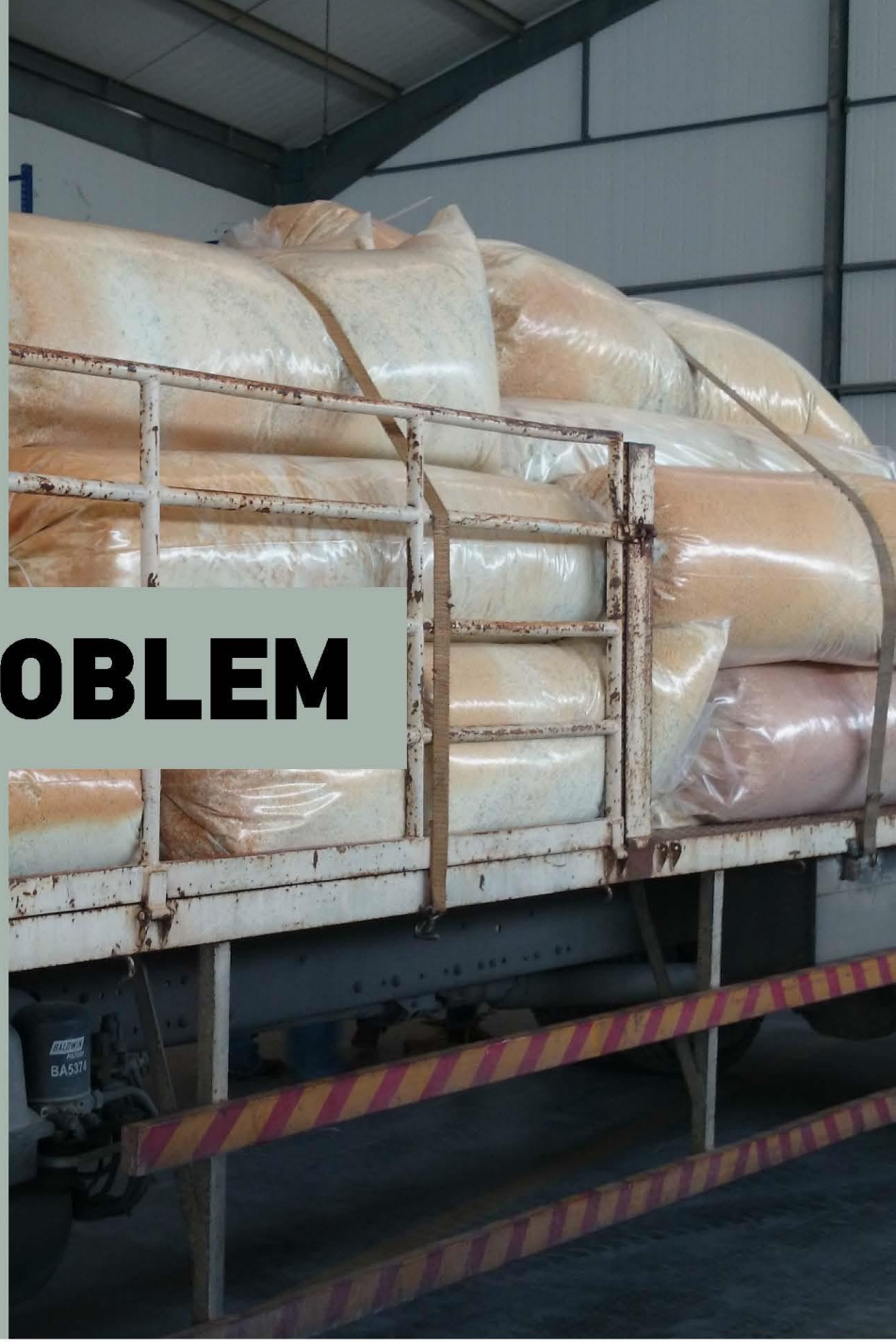
PARALIMNI MARINA CYPRUS



NK INTERNAL LABORATORY

NK
TRAINING
CENTER





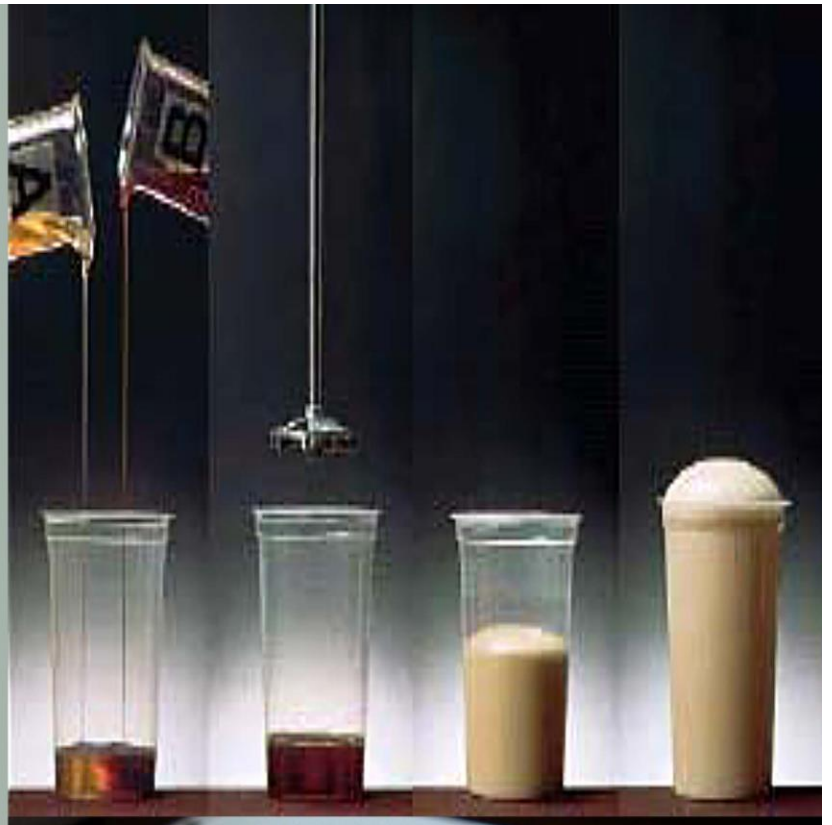
THE PROBLEM

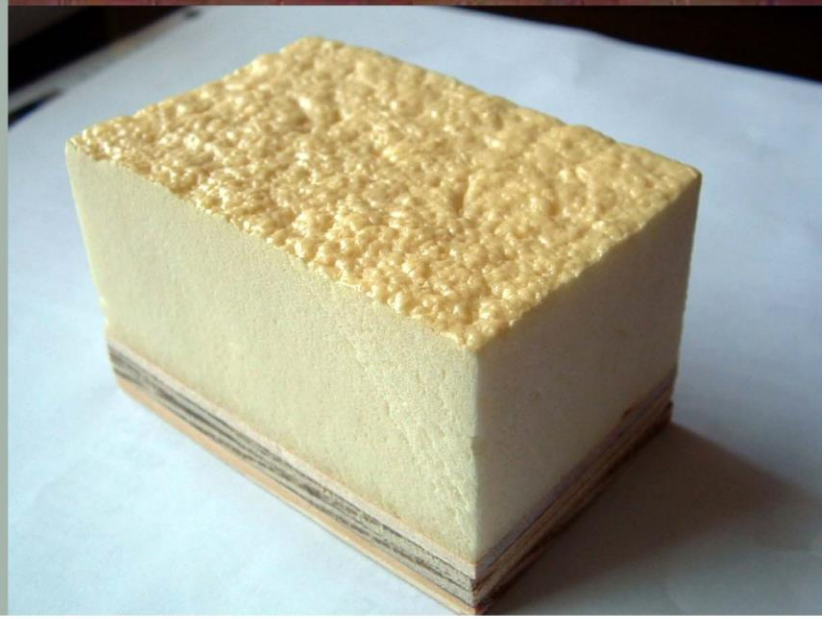
Rigid Polyurethane Foam

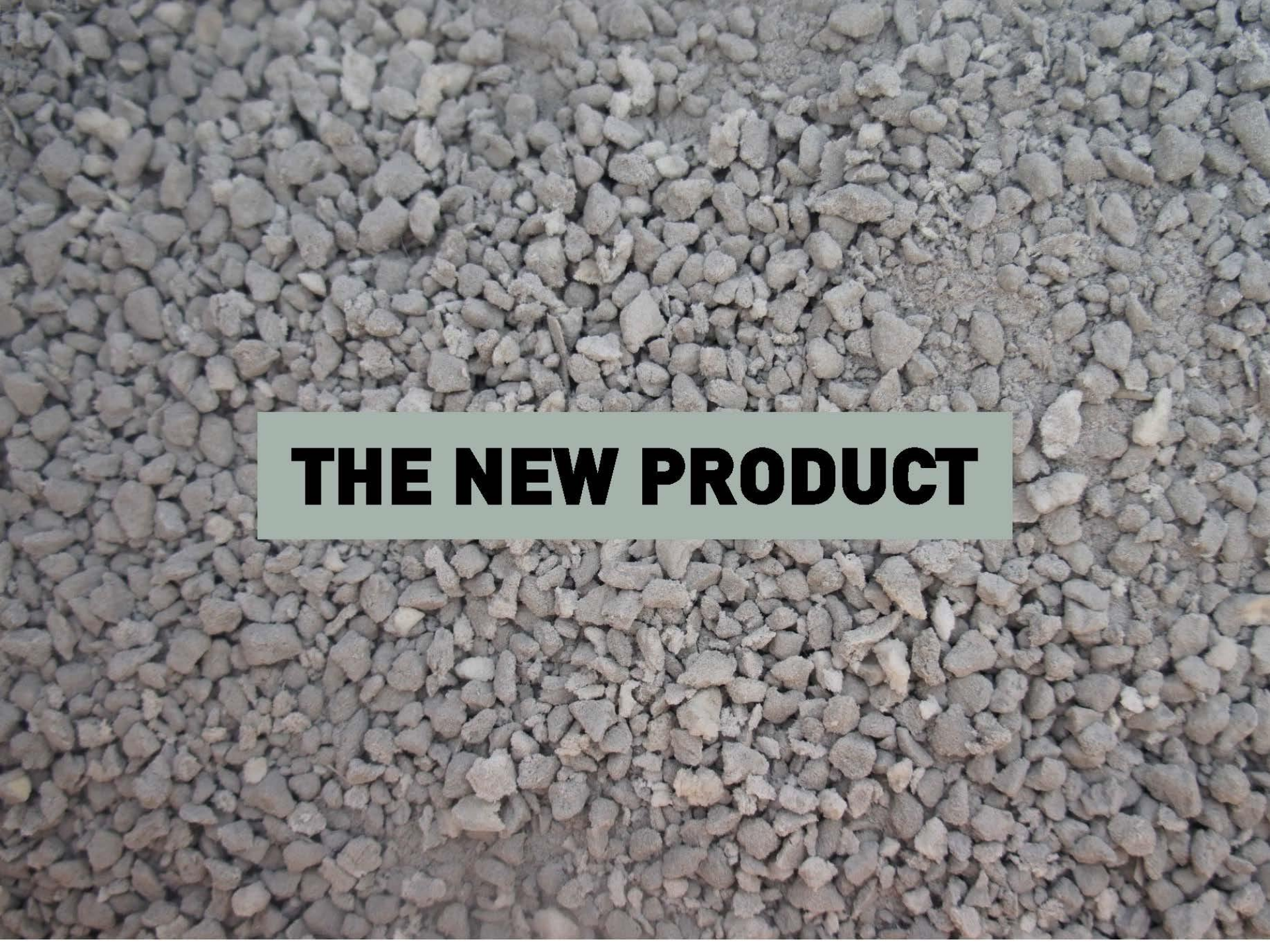
- Organic Material
- Main Ingredients:
  Polyol & Isocyanate
- Rigid foam
- ThermoPlastic Material
- Low density
- Non toxic
- Low thermal coefficient (λ)
  (this equates to very good thermal insulation behavior)
- Dimensional Stability
- High resistance to ageing

Applications:

- Refrigerators
- Boilers
- Thermal insulating construction products



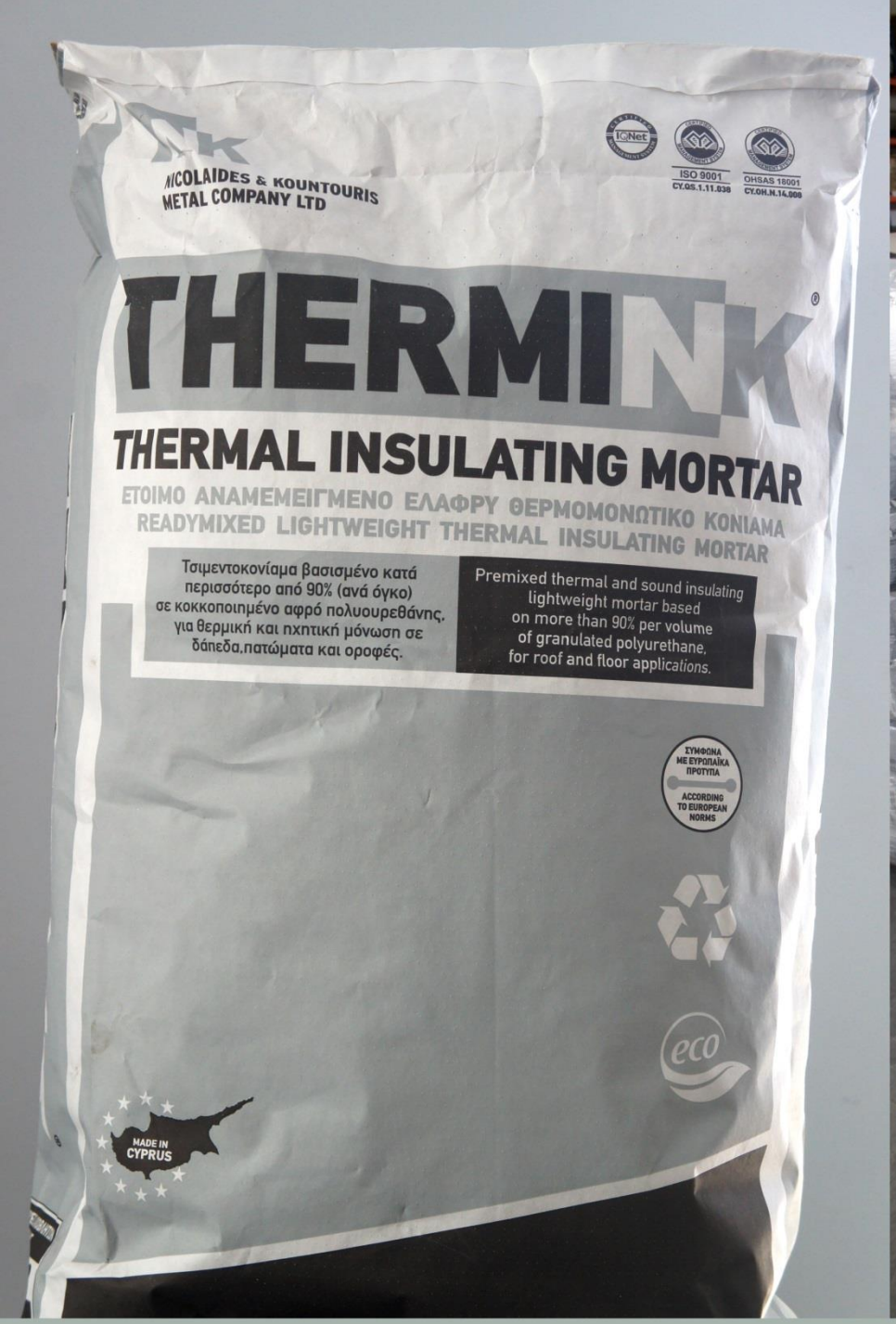


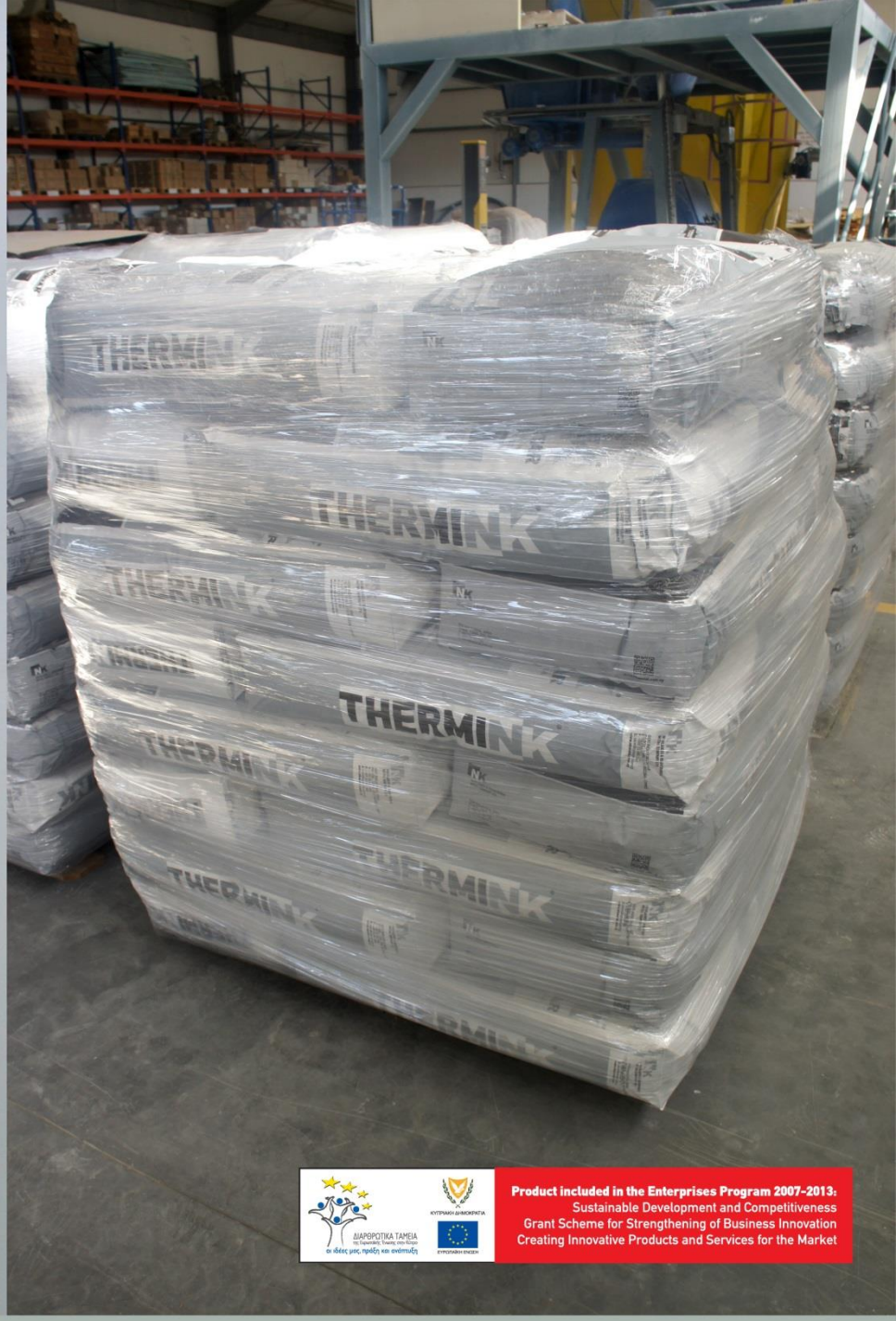

THE NEW PRODUCT

Technical Characteristics

THERMINK

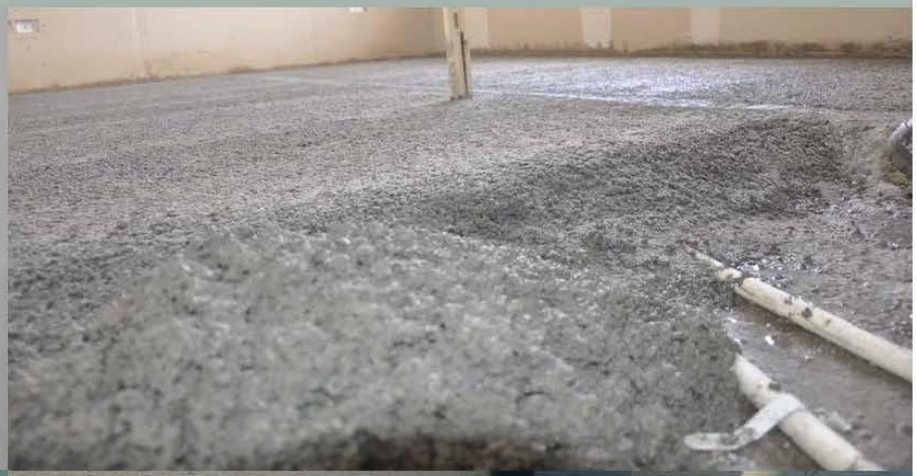
CHARACTERISTIC	DESCRIPTION	STANDARD
Appearance	Grey	
Packing	Packed in paper bags of approx. 75L	
Application temperature	+ 5 °C up to +35 °C	
Minimum (application) thickness	5 cm	
Consumption	16 bags for 1m^3	
Particle size polyurethane	Up to 8 mm	
Density	420 ± 10% kg/m^3	EN 12390-3:2009
Thermal conductivity	0.07 ± 5% W/mK	EN 12664
Reaction to fire class	A2fl-s1 Nonflammable building material	EN 13501-1 + A1 :2010 EN ISO 1716 EN ISO 9239-1
Compressive strength	1,0 ± 5% N/mm^2 =1,0 ± 5% MPa =100 ± 5% tons/m^2	EN 12390-3:2009
Water vapour diffusion coefficient	μ=6,65 ± 0,22	EN 12086:2013
Flexural strength	0,90 • 0,92 N/mm^2	EN 12390-5:2009
Sound absorption	Rw (C; Ctr) =40 (-1;-2) dB (for thickness 10 cm)	EN ISO 10140-1:2012 EN ISO 10140-2: 2010 EN ISO 717-1:2013

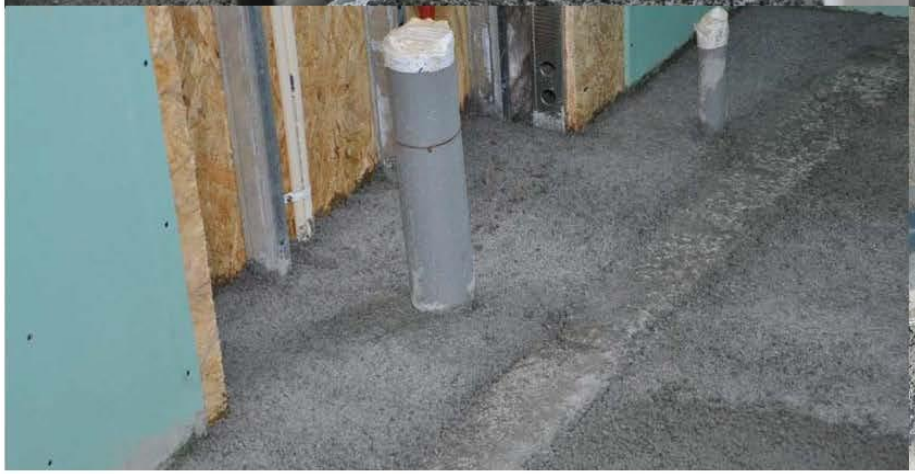




Product included in the Enterprises Program 2007-2013:
Sustainable Development and Competitiveness
Grant Scheme for Strengthening of Business Innovation
Creating Innovative Products and Services for the Market

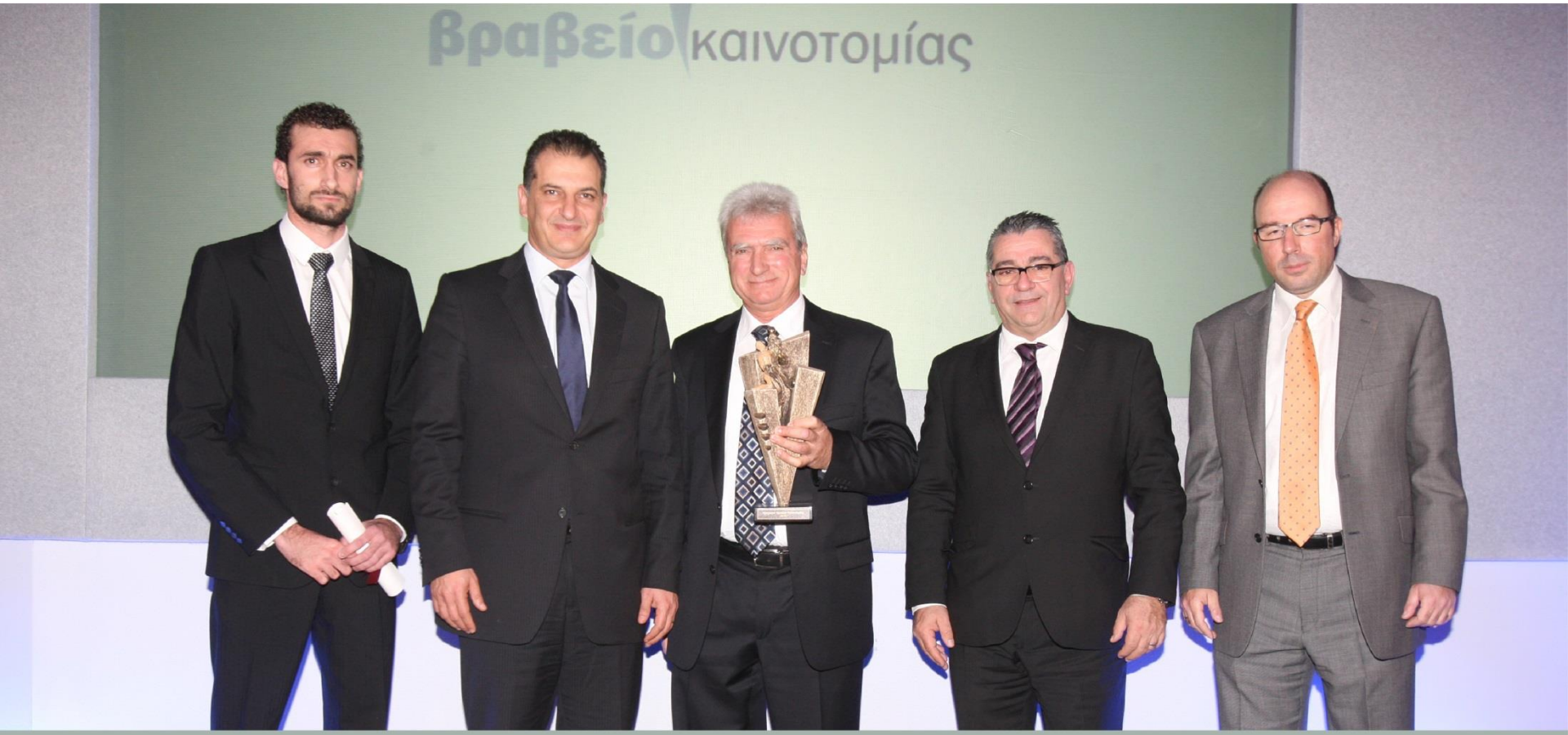
Usage & Applications

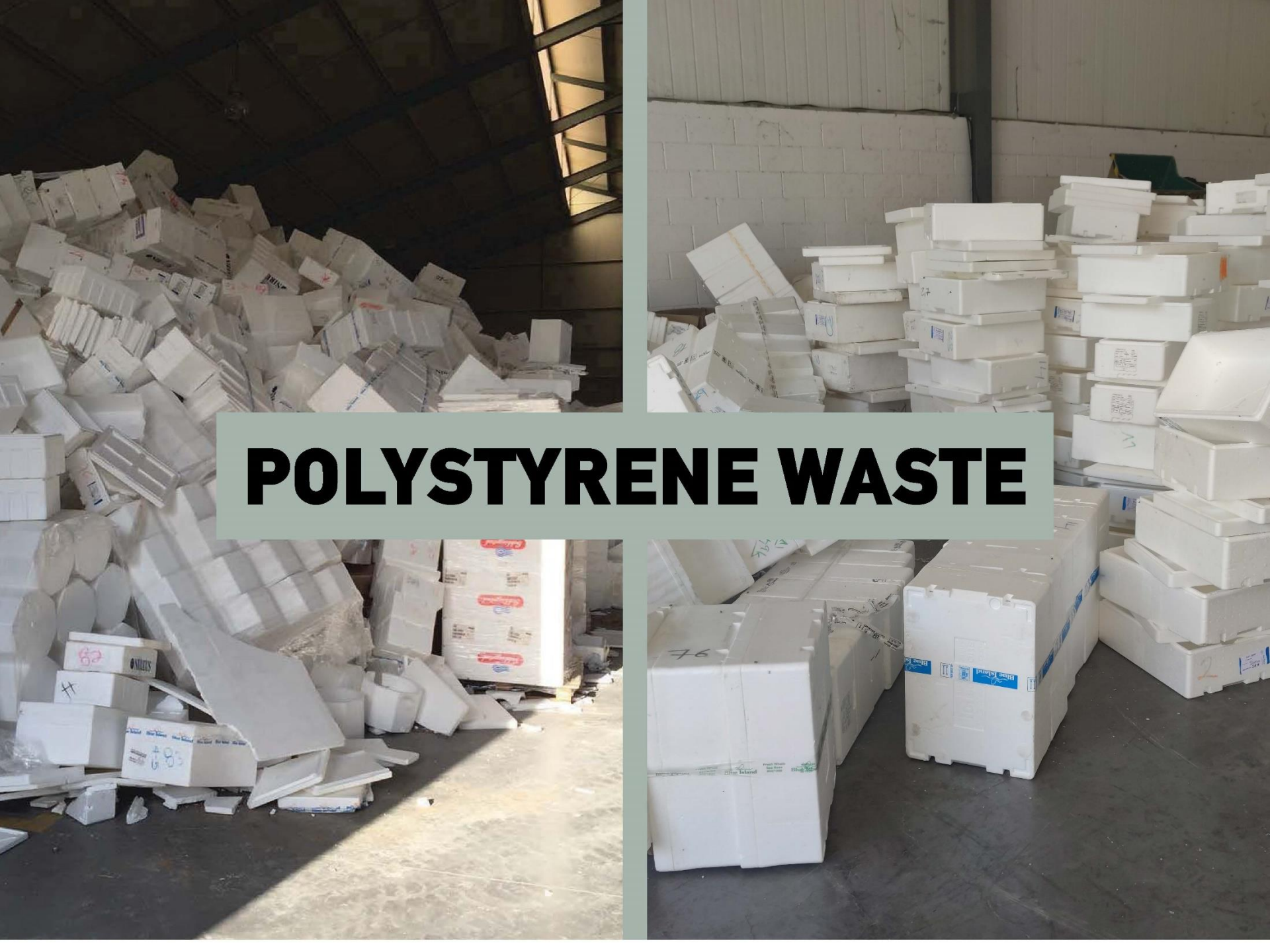




For the production of
THERMINK,
our company received
the Cyprus Innovation
Award 2014
(Manufacturing Sector).

winner
CYPRUS
innovation award
MANUFACTURING SECTOR 2014





POLYSTYRENE WASTE

Technical Characteristics

- **Low Density**

THERMINK: 420 ± 10% kg /m^3 , PS THERMINK: 340 ± 10% kg /m^3

- **High Compressive Strength**

THERMINK: 1.0 ± 5% N/mm^2, PS THERMINK: 0.85 ± 5% N/mm^2

- **Low water vapour diffusion coefficient,**

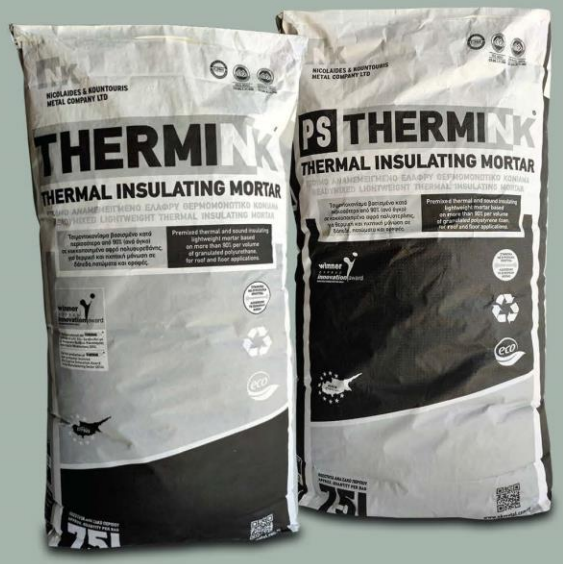
THERMINK & PS THERMINK: μ=6,65 ± 0,22

- **Low thermal Conductivity Coefficient**

(this equates to very good thermal insulation behavior)
THERMINK: 0.07 ± 5% W/mK, PS THERMINK: 0.09 ± 5% W/mK

- **Reaction to fire Class**

THERMINK & PS THERMINK: A2fl-s1
(Nonflammable building material)



- **Distinct sound insulation properties**

(properties that distinguishes the products from other competitive products)
PS THERMINK: Rw (C:Ctr)= 32(-1:-2) dB (for thickness 10cm)
THERMINK: Rw (C:Ctr)= 40(-1:-2) dB (for thickness 10cm)

WASTE MANAGEMENT SYSTEM

PUR WASTE FOAM

GRANULATION

THERMINK

Waste management Management License for PUR/EPS/XPS Waste

Manufacturing of waste treatment system and insulating mortar production plant

Final Products in bags of 75L

Thermal and sound insulation for roof and floor applications

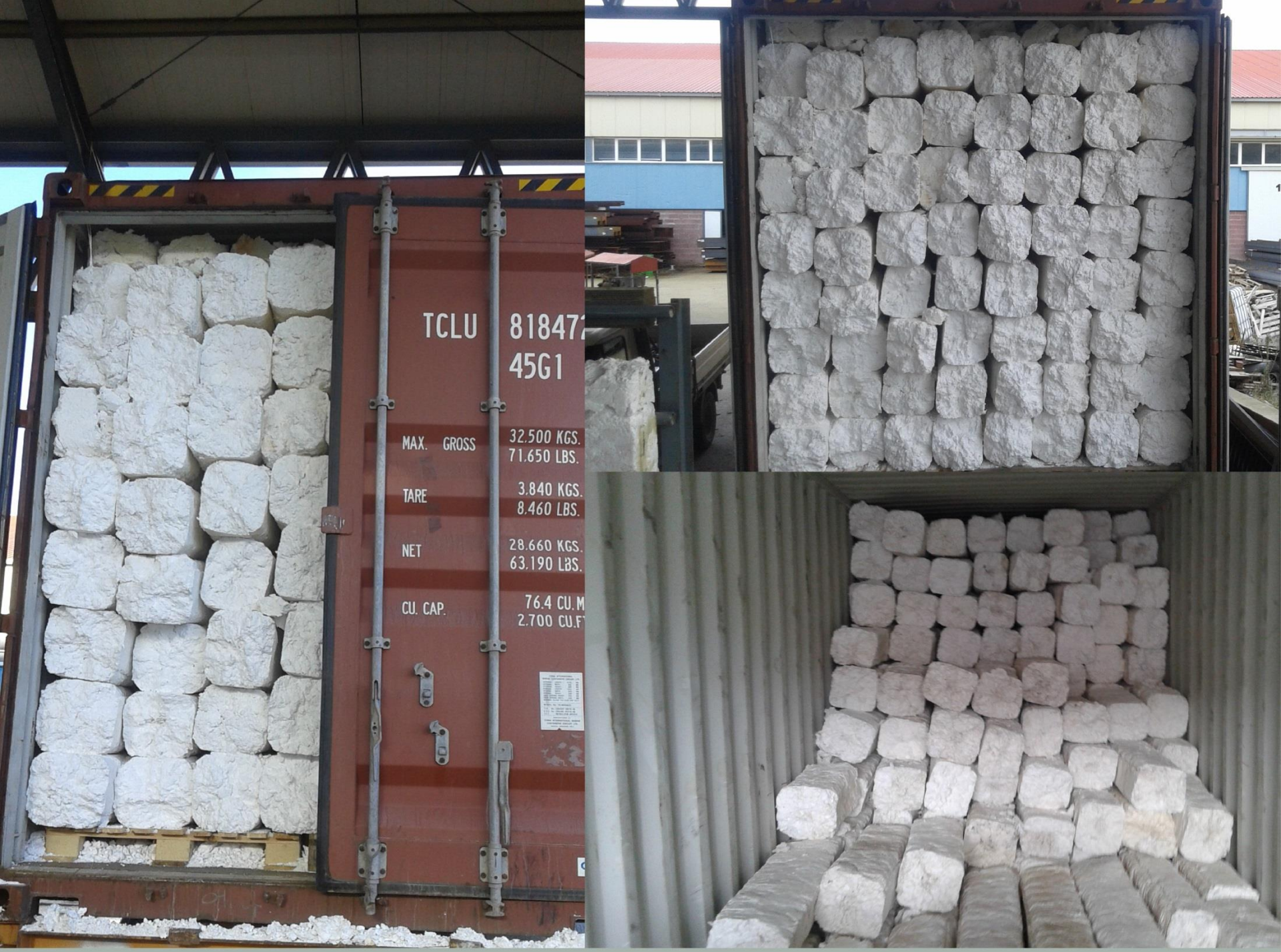
EPS/XPS WASTE FOAM

GRANULATION

PS THERMINK

Cyprus Inneon Eco-innovation AWARD 2015

Network for Eco-Innovation Investment


TCLU 818472
45G1
MAX. GROSS 32.500 KGS. 71.650 LBS.
TARE 3.840 KGS. 8.460 LBS.
NET 28.660 KGS. 63.190 LBS.
CU. CAP. 76.4 CU.M 2.700 CU.F

NK MORTAR SYSTEM

Technology for recycling, recovery and reuse of polyurethane and/or polystyrene foam from construction, demolition and packing, by producing thermal and sound insulating mortars for application on floors and roofs.

Product included in the Enterprises Program 2007-2013.
Sustainable Development and Competitiveness
Grant Scheme for Strengthening of Business Innovation
Creating Innovative Products and Services for the Market

NK MORTAR SYSTEM includes:

1. Offer of Knowhow for the formulation and production of EPS/XPS/PUR/PIR mortars
2. Design, Fabrication and Installation of the proposed plant
3. Formulation of final product(s)
4. Certification of the production plant (CE Mark and Technical File)
5. Certification of final product(s)

NK Mortar System is an innovative business opportunity that falls under the concept of Circular Economy, and the 'user' can claim participation in various funding schemes (for example, from the European Union)

BENEFITS

FOR THE USER (INSTALLER OF NK MORTAR SYSTEM)

- Avoid dumping of polyurethane and polystyrene waste in landfills
- An economical solution for recycling and reusing polyurethane and polystyrene waste
- Zero purchase costs of the basic raw material (rigid polyurethane and polystyrene waste).
- Production of long-life products due to the long life span of the raw material
- Production of quality thermal insulating products THERMINK and PS THERMINK
- Low-cost production procedure with a high profitability perspective
- New job vacancies

FOR THE ENVIRONMENT

- Rigid Polyurethane and polystyrene waste can be locally recycled and reused.
- Landfill space can be saved.
- Reformulating and recycling products (THERMINK and PS THERMINK) have lower energy consumption than producing the products from virgin materials
- Reusing rigid polyurethane and polystyrene waste saves significant raw materials and energy. It is noted that the production of virgin rigid polyurethane and polystyrene, require high energy consumption.
- Reduction of plastic waste. It is noted that that rigid polyurethane and polystyrene belongs to the family of plastic materials.
- Zero emissions to the environment, because none of the raw-materials (polyurethane foam and polystyrene cement, additives) is pollutants or hazardous to the environment (and human).

WASTE MANAGEMENT SYSTEM

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GRANULATION

PS THERMINK

THANK YOU
FOR YOUR ATTENTION