Re-use of Particles

Particles from PU rigid foam thermal insulation can be used as oil binders or in combination with cement as insulating mortar.

OIL BINDER

PU powder and larger particles obtained from cutting and shaping of rigid foam for building & construction applications in the factory are known since long to be excellent absorbers of oil or, more generally, many kinds of liquids that have been accidentally spilled.
They have been marketed since years as "oil binders" in several forms, e.g.:

- Loose powder and/or small particles in sacks for the treatment of spillages on land
- Low density pressboards for the same purpose (not as easily blown away by wind)
- Loose powder and/or small particles in hoses for the containment of spillages on water surfaces (note: PU rigid foam swims)

Specific advantages are:

- Higher absorption capacity than saw dust and sand
- Much lower weight / lower disposal cost than sand

In recent years, this application has been used for powders and particles from the PU insulation of end-of-life refrigerators and freezers, too.
INSULATING MORTAR

A combination of rigid foam particles (up to about 1cm diameter) - generally production scrap from building and construction applications - and powder -often from post consumer refrigerators and freezers - is suitable as the main raw material (more than 90%) for insulating "mortar". (The remainder can be cement as binder and other proprietary ingredients). It is shipped to the construction site in sacks similar to the cement itself. It is there mixed with water and spread on the floor with equipment normally used for inorganic mortars.

Specific advantages are:

• Lightweight
• Thermal and acoustic insulation
• Easy handling

This approach is currently used for the following applications:

• THERMOGRAN® FLOOR: polyurethane mortar for thermal insulation and levelling of floors (Lambda = 0.06 W/mK) – mainly in Belgium
• THERMOGRAN® ROOF: polyurethane mortar for thermal insulation and downward gradient of roofs (Lambda = 0.06 W/mK) – mainly in The Netherlands
• THERMOGRAN® ACOUSTIC: polyurethane mortar for thermo-acoustic insulation and levelling of floors (Lambda = 0.04 W/mK; DLn = 32 dB)
• THERMOGRAN® is world-wide patented
ISOPA has produced a brochure and a series of fact sheets on polyurethane recycling options.

The following are now available:

Recycling Polyurethanes (Brochure)
   PU in Perspective
   Densification/Grinding
   Re-use of Particles
   Rebonded Flexible Foam

Adhesive Pressing/Particle Bonding

Re-grind/Powdering

Compression Moulding

Chemolysis

Feedstock Recovery

Energy Recovery

Energy Recovery from Flexible PU Foams

Recovery of Rigid Polyurethane Foam from Demolition Waste

Options in Practice

ISOPA - the European Isocyanates Producers' Association - is an affiliated organisation within the European Chemical Industry Council (CEFIC).

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June 2001