

RESTARTING YOUR PETROCHEM PLANT

WHAT YOU NEED TO KNOW ABOUT PIPE AND EQUIPMENT INSULATION WHEN DISASTER STRIKES

Pipe and vessel insulation has two critical roles in refineries and chemical processing plants in addition to saving energy, controlling process temperature and protecting workers. Insulation failure can result in injury, fire danger, material waste and equipment damage. If your plant was shut down or damaged by flooding, natural disaster or fire you need to be sure the insulation is still functional before restarting. Here is what to look for and what to do about it:

WET INSULATION

- Thoroughly wet calcium silicate or perlite insulation may be left in place on piping that will operate at 400° F or greater if the jacket is still structurally secure and the insulation is not deformed or sagging. Heat up the system gradually to allow vapor to escape slowly and minimize the risk of damage to the insulation and pipe.
- Saturated fibrous insulation will sag, leaving the top of horizontal pipe under insulated. If the insulated pipe appears to be out round with a tear-drop or pear shape, the waterlogged insulation is sagging and must be replaced. Insulation on vertical runs which show evidence of jacket “ballooning” or rupture should also be replaced.
- Fibrous insulation that is only damp and is not deformed or structurally damaged will dry out in normal service on piping of 250° F or greater operating temperatures. Gradual heat-up is recommended.

CORROSION UNDER INSULATION

- Calcium silicate or perlite insulations are manufactured with anti-corrosive silicates that help prevent corrosion even if the insulation gets wet.
- Fibrous and cellular glass insulations should be the first priority in corrosion inspections, particularly if they have been exposed to salt water, or other high-chloride chemicals.

SHORT-TERM REPAIR OPTIONS

- Where damage to the insulation has exposed the pipe, consider installing FSK-faced mineral fiber or fiber glass flexible insulation as a temporary fix. This will reduce energy consumption and protect personnel from injury. This type of insulation can be quickly installed, and when properly sealed will serve until a permanent insulation installation can be scheduled.
- Cracks or breaks in calcium silicate or perlite insulation can be repaired using high-temperature accessory adhesives or cements. Industrial Insulation Group distributors carry a complete line.

MECHANICAL CONSIDERATIONS

- Bands that hold the insulation jacketing in place should not be loose or sagging. A broken band is an indication that the insulation is water-logged.
- Replace jacketing that is loose or torn.
- Ruptured jacket is a sign of severe mechanical damage or saturated insulation, and should be re-placed or repaired only after addressing the root problem.
- Inspect the pipe hangers to ensure that the saddles supporting the insulated pipe are in place.
- Consider the traffic pattern of the restoration and maintenance workers: piping runs where heavy foot traffic can be anticipated should be insulated or re-insulated with calcium silicate. This rigid insulation stands up to mechanical abuse and delivers long-term insulation performance.

For answers to questions about using, repairing or replacing industrial insulations, call Industrial Insulation Group at (800)866-3234 or visit www.jm.com/industrial. With a complete line of calcium silicate, perlite, microporous blanket, and mineral fiber insulations and accessories, Industrial Insulation Group is uniquely positioned to help you make intelligent insulation decisions so you can get your plant back in service fast.

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Industrial Insulation Group, LLC manufactures MinWool-1200® mineral fiber pipe, block and a variety of other insulations; Thermo-12® Gold Calcium Silicate pipe and block insulation; Microporous Blanket insulation; Super Firetemp® fireproofing board; SprouleWR-1200® Perlite pipe and block insulation; high-temperature adhesives, and insulating finishing cement. The physical and chemical properties presented herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Numerical flame spread and smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the Customer Service Office to assure current information. All Industrial Insulation Group products are sold subject to the Johns Manville Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville Limited Warranty and Limitation of Remedy, email info.industrial@jm.com.

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