

JUST KEEP IT REAL

THE HONESTY NEEDED TO BUILD A TRUSTING RELATIONSHIP WITH OWNERS

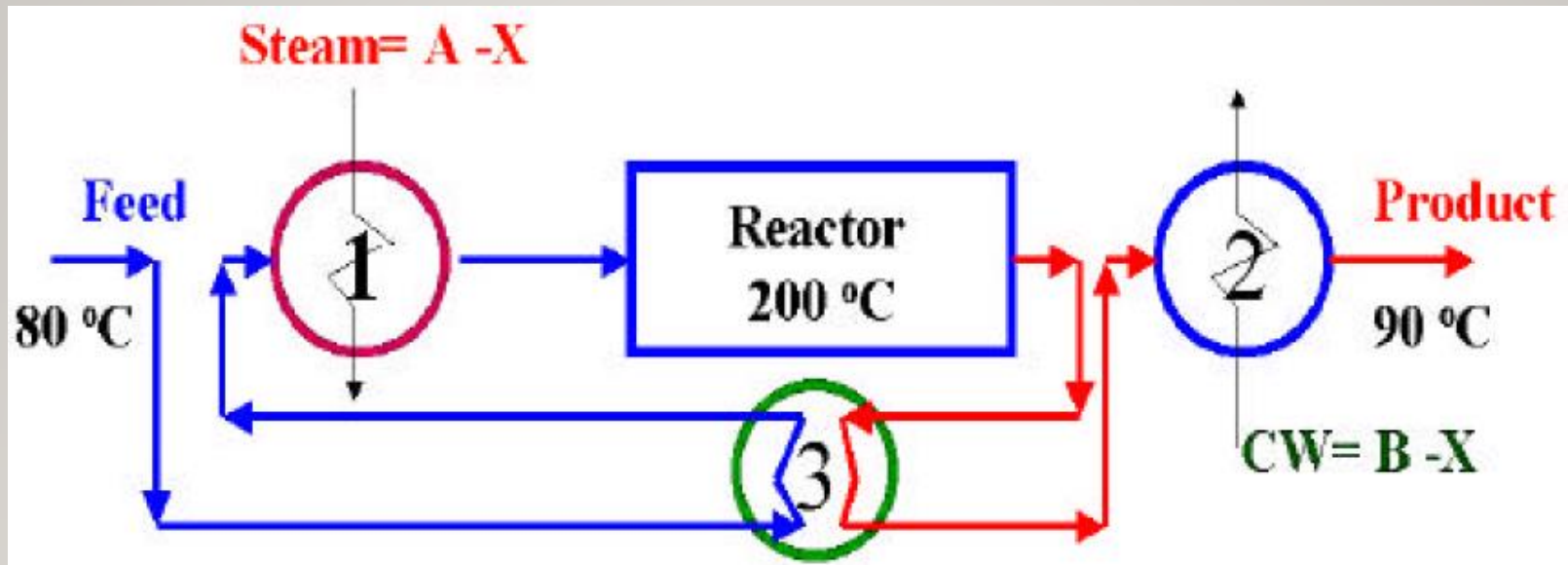
Scott Kellogg
SWICA
August 6, 2019

WHY INSULATION IS IMPORTANT

- Energy Conservation
- Personnel Protection
- Fire Protection
- Noise Abatement
- Stabilize Process Control

VALUE OF INSULATION

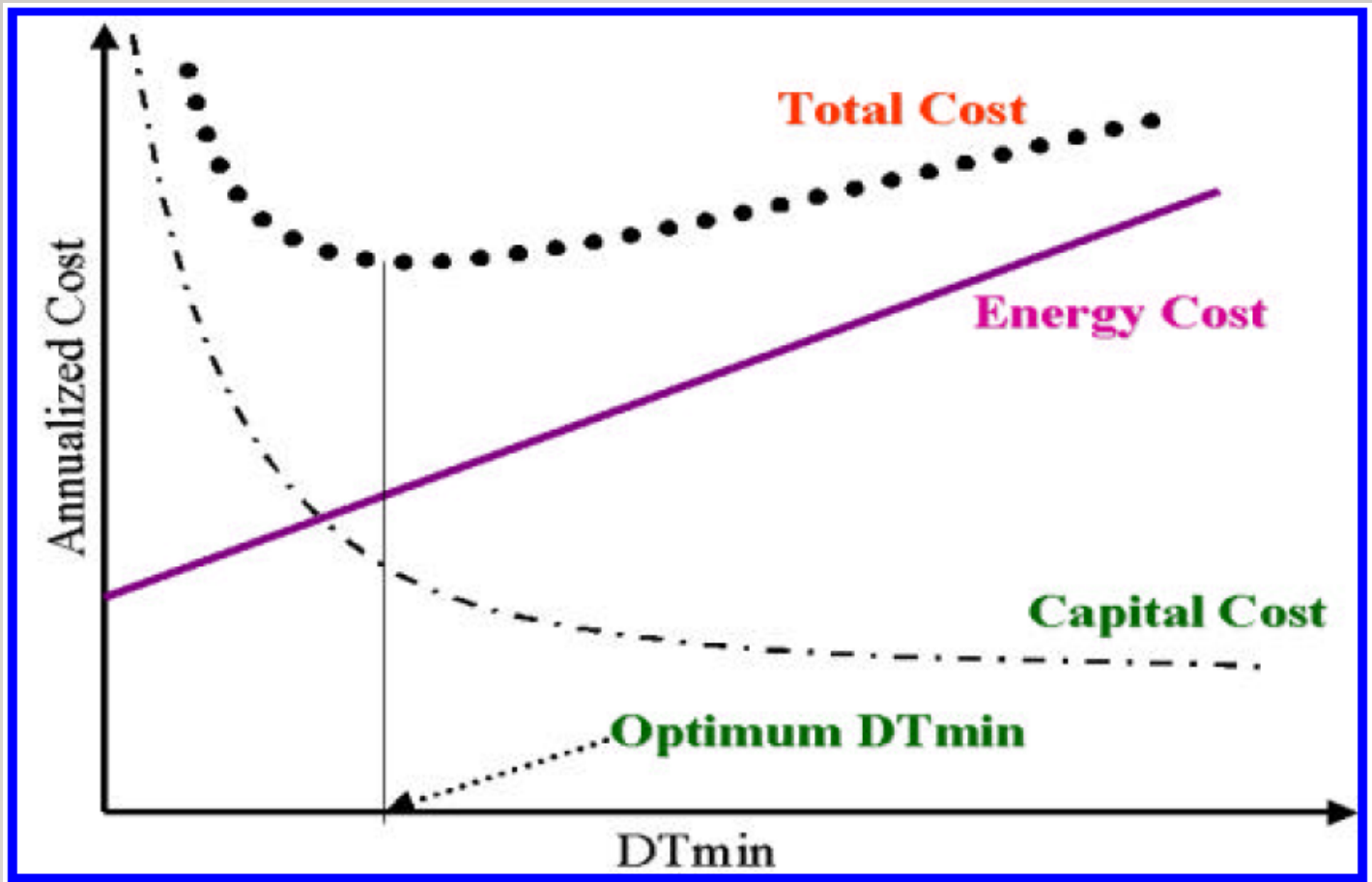
- How owners value and evaluate the performance of insulation
 - Energy Consumption / Plant Rate
 - CUI of pipe and equipment
 - The highest incidence of leaks in the refining and chemical industries are due to CUI and not to process corrosion
 - Most piping leaks – 81% – occur in diameters smaller than 4-inch nominal pipe size
 - Between 40% and 60% of piping maintenance costs are related to CUI



- Any energy lost through insulation has to be made up by either fuel or electricity.
- Where the energy input into the system is limited, the loss of energy through insulation results in a reduction in operating rate.

COST OF INSULATION

- Owners are very aware of the cost to:
 - Install insulation
 - Pay for energy usage
 - The impact insulation has on plant rate
 - Find and repair CUI
- While it may seem that initial installed cost is most critical, it is not.
- What owners are really looking at is total life cycle cost including energy utilization, impact on production rates, and CUI repairs.



MONTHLY FUEL COSTS

- The monthly natural gas bill for a chemical complex can be around 8 to 10 million dollars per month or 100 - 120 million dollars per year.
- The electricity can also cost on the order of 8 million dollars per month or 100 million dollars year.
- A significant portion of this energy bill is due to losses through insulation.

CORROSION UNDER INSULATION (CUI)

- The cost of CUI is significant in both maintenance cost and lost production.
- Owners are acutely aware of the cost of CUI including:
 - Safety and Environmental aspects of loss of containment
 - Inspection programs to find CUI
 - Downtime related to CUI
 - Short term repairs to keep systems operating safely until long term repairs can be made
 - Long term repairs generally consist of replacing the pipe or equipment

RISER REPLACEMENT



MAINTENANCE OF INSULATION

- Generally little maintenance is done on insulation after it's installed so the durability and ability to hold up to abuse is important.
- Insulation with long term thermal stability is important.
- Durability of insulation may be a key factor around some equipment where people are likely to walk on it.



ETHICS

- Owners want to know the truth.
 - There is no insulation that is ideal for all types of insulating.
 - Owners want an honest evaluation and input from contractors and manufacturers on what works best where.
 - Not all insulation is perfect, accept the challenges and highlight the benefits.
 - Owners want to understand the cost and benefit and then make informed decisions.
 - Sometimes cost is the absolute driver
 - Sometimes other factors play a more significant role.

GETTING THE CORRECT INFORMATION IS CRITICAL TO SELECTING THE RIGHT INSULATION

- Accurate heat transfer information is needed to size the insulation.
- In order to make the insulation look less expensive some manufacturers may not be entirely forthright in presenting information on typical heat transfer.
 - Round vs flat heat transfer
 - New vs aged heat transfer
 - Insulation properties need to be presented for the temperatures at which it will be operated
- Don't state assumptions or urban legend as fact. It's okay to find out later.



CONTRACTORS AND MANUFACTURERS ARE KEY TO ACCURATE INFORMATION

- Contractors and Suppliers are key sources of information for owners.
- When information presented requires a lot of fact checking credibility is lost.

INSTALLATION AND INSPECTION

- Owners need help from high quality contractors and manufacturers to learn what to look for.
- Most insulation systems fail because of problems with installation.
- Different types of insulation require different installation techniques and vapor barriers.
- Owners need someone to teach them the importance of details in installation and how to recognize shortcuts.

TRAINING

- Typically, the level of understanding about insulation among owners needs improvement.
- Insulation is complicated and the stakes are high.
- The industry can and should do more training to help people at operating companies chose the correct type of insulation.
- Care and maintenance of insulation system after installation is critical and often under appreciated among owners.

SPECIFICATIONS AND STANDARDS

- Unfortunately, many Project Managers and General Contractors do not understand insulation.
- Although a company may have specifications for insulation, contractors should not assume that the company actually knows what they are doing and what is written down is actually what they want or need.
- Insulation Contractors often limit their involvement to those paying the bills, Project Managers and General Contractors.
 - It will take some effort but it's worth the effort to talk to the people who are writing the specifications and operating & maintaining the equipment.
 - Owners are generally grateful when contractors or others provide information that helps improve the quality and cost effectiveness of their projects or standards.

WORKING THROUGH AN EPC CONTRACTOR

- When working through an EPC contractor, it may seem difficult or impossible to get in communication with the owner but it can be done.
- It is worth the extra effort when reputable contractors identify deficiencies in the insulation specification/standard and bring it to the attention of the owner.
- Like many things in construction, the earlier in a project this is done the easier and more effective it is.

CONCLUSION

- Owners depend on manufacturers and contractors for accurate information and product specific training.
- Owners are concerned about the installation cost but they are more concerned about:
 - Safety & Potential Environmental Releases
 - CUI
 - Energy Consumption / Plant Rate
 - Durability
- Owners will spend extra money when they can see the value created.