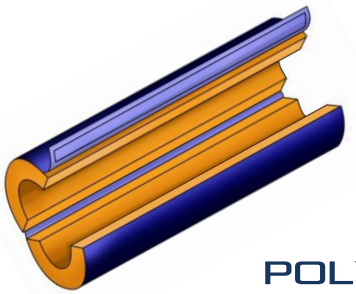
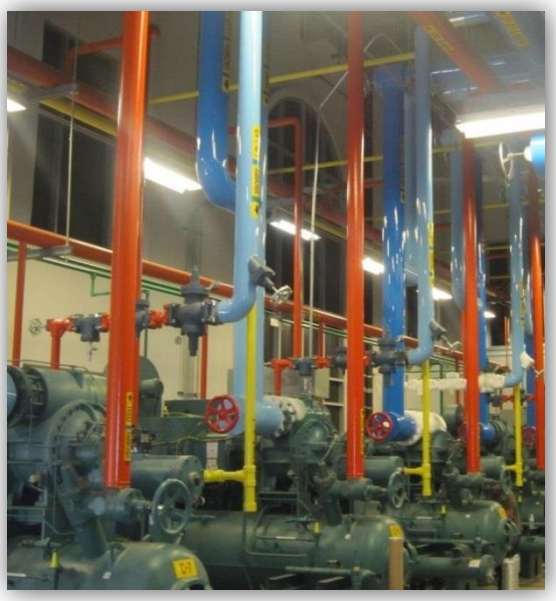


# QWIK GUIDE:
## POLYISOCYANURATE AND EXTRUDED POLYSTYRENE

## BACKGROUND

Dyplast's 0214 Technical Bulletin was focused primarily on examining the cost of insulation systems versus energy savings and long-term performance of polyisocyanurate (polyiso or PIR) and extruded polystyrene (XPS) insulants in low-temperature applications such as refrigeration and chilled water applications. It's no surprise that polyisocyanurate was the hands-down selection based purely on physical properties, cost, and demonstrated thermal efficiencies in practice.



Today, while the facts remain mostly the same, this Bulletin revision is more-so focused on the misinformation and/or lack of full disclosure so prevalent in the marketplace. Dyplast has aggressively advocated over the past decade for:

- honest presentation of physical properties and pertinent information, yet also
- full-disclosure, complemented with
- third-party verification and audit of physical properties and the quality process.

## MISCONCEPTIONS

We have polled a large number of both specifier-engineers and insulation end-users regarding some of the basics regarding selection of the optimal insulant. A surprisingly large number were frustrated by the misinformation in the marketplace and the difficulties in slicing through the fog.

For instance, you may want to consider the following:

1) The k-factors of different XPS products may "age"? Are *aged k's* presented?
2) Are physical properties of XPS measured as averages across the *billet* as ASTM requires of polyiso?
3) If the ammonia refrigerant is at -40°F (-40°C) and the ambient temperature is 75°F (24°C), the "*mean*" temperature is more likely around +20 to +25°F[1]
4) To what extent is Water Absorption or Water Vapor Transmission a pertinent consideration for an insulant with a pipe temperature of -40°F? [Note: some XPS suppliers falsely imply there is residual moisture inherent within polyiso insulation; the fact is there is no residual water]. The WA and WVT of polyiso and XPS are comparable.
5) A vapor ***barrier*** has a permeance of less than 0.1 perm, and there are several brands with zero permeance. Some XPS suppliers still recommend a vapor "retarder" (greater than 0.1 perm) even in very low-temperature applications such as refrigeration.

You may want to review the more complete Technical Bulletin 0418 on the subject. Or just call Dyplast to discuss the issues and answers behind ISO vs XPS!

[1] Verify with your engineer!