

# THE PLAIN FACTS

## Insulation and Plastic Pipes



# Plastic Pipe Manufacturers Claims... and the Facts

Plastic pipes are increasingly being specified and used in the HVAC industry. Some manufacturers claim that by using plastic pipes either the thickness of insulation can be reduced or no insulation is necessary at all, because the plastic is a better insulator. This leaflet has been produced to clarify what effect, if any, the use of plastic pipes has on the required thickness of *Kingspan Kooltherm*<sup>®</sup> zero ODP Pipe Insulation.

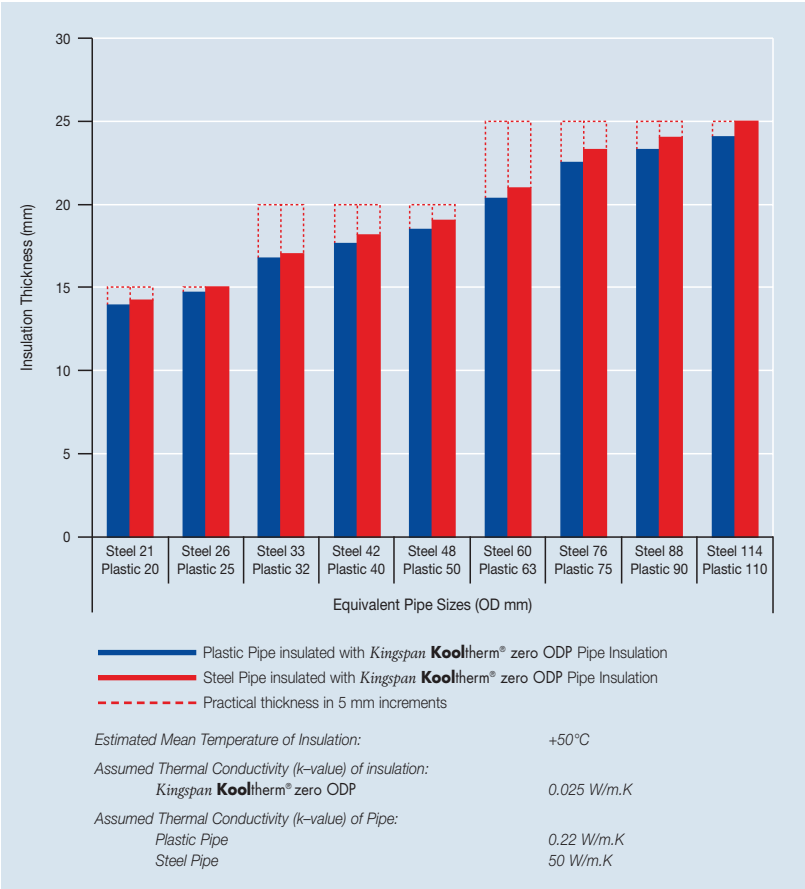
## Claim

'by using plastic pipes either the thickness of insulation can be reduced or no insulation is necessary at all'

## Fact

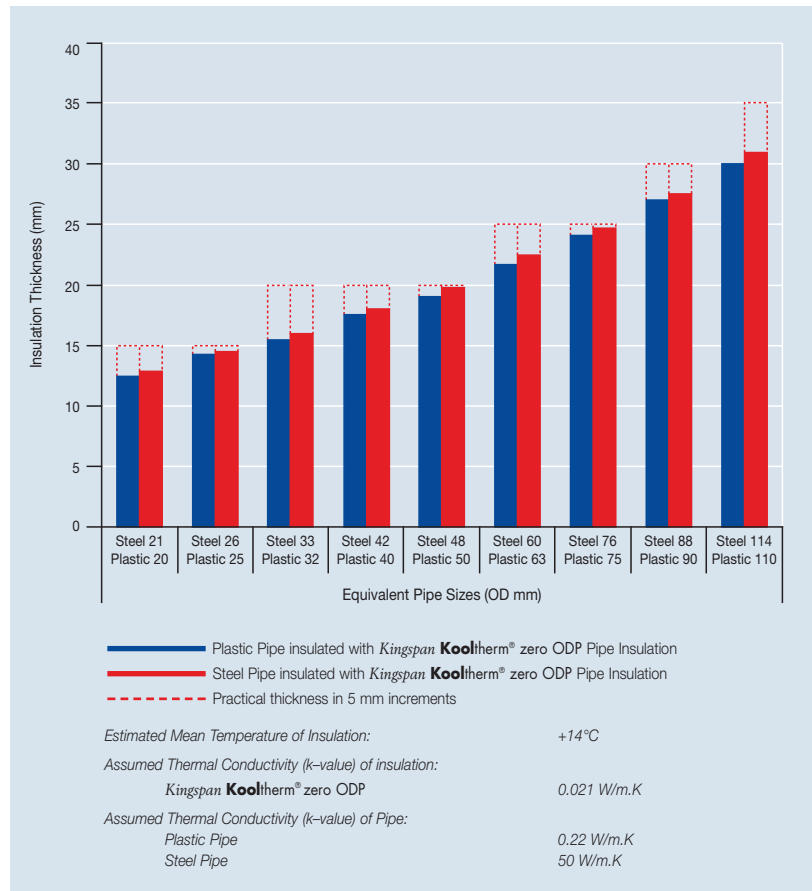
The thermal conductivity of the plastic used in pipe manufacture is approximately 0.16 to 0.22 W/m.K, compared with 0.021 W/m.K for *Kingspan Kooltherm*<sup>®</sup> zero ODP rigid phenolic insulation. This means that a 10 mm plastic pipe wall thickness is equivalent to 1 mm of *Kingspan Kooltherm*<sup>®</sup> zero ODP rigid phenolic insulation – a negligible amount, which is unlikely to affect the practical thickness of pipe insulation required.

The charts below and opposite illustrate the thickness of *Kingspan Kooltherm*<sup>®</sup> zero ODP rigid phenolic insulation required to comply with the BS 5422: 2001 standard for the control of heat loss/gain from both plastic and steel pipework. Given that pipe insulation products are sold in thicknesses with 5 mm increments it can be seen that there is no practical difference between the thickness of insulation required in the overwhelming majority of cases.



Environmental thickness (mm) of insulation required for non-domestic hot water (60°C) to control heat loss (Based on BS 5422: 2001 Table 13)

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Environmental thickness (mm) of insulation required for chilled water (0°C) supplies to control heat gain (Based on BS5422: 2001 Table 9)

## Conclusion

In summary, the insulating properties of plastic pipes are so insignificant that they have a minimal effect on the thickness of insulation required to meet the requirements of BS5422: 2001. Claims that plastic pipes need not be insulated or that they require less insulation should be treated with caution. By overlooking the fact that plastic pipes have minimal insulating properties, you may not be meeting the requirements of major national specifications including BS5422: 2001 and NHS CO<sub>2</sub>.

BS5422: 2001 has been written into Approved Documents L1 and L2 of the Building Regulations in order to ensure that the level of insulation on Building Services is in line with the Government's commitment to reduce CO<sub>2</sub> emissions.

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# Contact Details

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## Technical Advice/Design

Kingspan Insulation Ltd support all of their products with a comprehensive Technical Advisory Service for specifiers, stockists and contractors.

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General application advice and advice on design detailing and fixing etc... can also be provided. Site surveys are also undertaken as appropriate.

Please contact the Kingspan Insulation Building Services and Industrial Insulation Technical Services Department on the **TECHLINE** numbers below:



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## Literature & Samples

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Available as a complete Design Manual on CD-ROM or as individual product brochures, Kingspan Insulation technical literature is an essential specification tool. For copies please contact the Kingspan Insulation Marketing Department on the numbers below:

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