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**Pipes and fitting made of
crosslinked polyethylene (PE-X)—
Estimation of the degree of
crosslinking by determination
of the gel content**

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Descriptors : cross-linking (chemical), cross-linked materials, polyethylene, pipes

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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In the event of any doubts arising as to the contents,
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**Pipes and fitting made of
crosslinked polyethylene (PE-X) —
Estimation of the degree of crosslinking
by determination of the gel content**

Introduction This Japanese Industrial Standard has been prepared based on the first edition issued in 1994 of ISO 10147, *Pipes and fittings made of crosslinked polyethylene (PE-X)—Estimation of the degree of crosslinking by determination of the gel content* without changing the technical contents.

1 Scope This Japanese Industrial Standard specifies a method for the assessment of the degree of crosslinking in polyethylene (PE-X) pipes and fittings by determination of the gel content by solvent extraction.

2 Principle The mass of a test piece taken from a pipe or a fitting is measured before and after immersion of the test piece in a solvent for a specified period of time. The degree of crosslinking is expressed as the percentage by mass of the insoluble material.

3 Solvent

3.1 Xylene, analytically pure, to which 1 % antioxidant [2,2-methylene-bis (4-methyl-6-t-butylphenol)] has been added.

WARNING – Xylene is a harmful and inflammable solvent that can be absorbed through the skin and, as such, should be handled carefully. Attention is drawn to any relevant regulations and associated exposure limits. Expose only in a ventilated hood. Check the effectiveness of the hood before starting the tests. Do not inhale the vapour. Excessive inhalation of the vapour may cause dizziness, headache or both. In the event of excessive vapour inhalation, seek fresh clean air.

4 Apparatus (see Fig. 1)

4.1 Reflux condenser, of the general type.

4.2 Round-bottomed flask, of at least 500 ml capacity (a 2 000 ml flask is suitable for up to six determinations at one time).

4.3 Heating mantle, to fit the flask (see 4.2), and with sufficient heating capacity to boil xylene (boiling range: 138 °C to 144 °C).