



National Energy Board

Office national de l'énergie

Canada

Advanced Coatings R & D for Pipelines PHMSA Workshop Gaithersburg 9 June 2005

Canadian Standards Association Standards on Pipeline Coatings

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CSA – Z662 – 03 Oil and Gas Pipeline Systems

Design

Assessment for the selection of coatings –
Factors to be considered:

- ▼ Pipe diameter, soil type and instability, depth of cover, cathodic protection potentials, type of fluid to be transported, coating resistivity;



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Design (continued)

- ▼ Pipe bending and backfilling;
- ▼ Maximum, minimum and cyclic temperatures, excursions, and durations;
- ▼ Coating application and ambient conditions;
- ▼ Service changes;
- ▼ Interaction of dissimilar coatings; and
- ▼ Duration and method of coated pipe storage.



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CSA – Z662 - 03

Materials

Plant Applied External Protective Pipe Coatings.



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CSA Z662 - 03

Non-mandatory Annex L

Test Methods for Coatings Property Evaluation

Test Methods for:

- ▼ Volume resistivity;
- ▼ Cathodic disbondment;



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- ▼ Adhesion;
- ▼ Water absorption;
- ▼ Water vapour transmission;
- ▼ Coating flexibility;
- ▼ Peel adhesion;
- ▼ Shear adhesion;
- ▼ Pull off adhesion;
- ▼ Impact resistance;



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- ▼ Wear abrasion;
- ▼ UV stability;
- ▼ Penetration;
- ▼ Temperature resistance;
- ▼ Chemical resistance;
- ▼ Microbial resistance;
- ▼ Oxidative stability; and
- ▼ Heat aging.



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CAN / CSA Z245.20 - 02

External Fusion Bond Epoxy Coating for Steel Pipe

Standard covers:

- ▼ Qualification;
- ▼ Application;
- ▼ Inspection;
- ▼ Testing;



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CSAN / CSA Z245.20 – 02 (Continued)

- ▼ Handling; and
- ▼ Storage

of materials required for plant-applied fusion bond epoxy coating applied externally to bare pipe.



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CAN /CSA Z245.21 - 02

External Polyethylene Coating

Scope: qualification, application, inspection, testing, handling, and storage.

An adhesive is interposed between bare or epoxy-primed pipe and polyethylene.



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A_1 and A_2 – adhesive and polyethylene outer sheath.

B_1 – liquid or powdered epoxy primer, a polymeric adhesive and polyethylene outer sheath.

B_2 – powdered epoxy primer, a powdered copolymer adhesive, and a powdered polyethylene outer layer.



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