WebCorr
CORROSION CONSULTING
SERVICES

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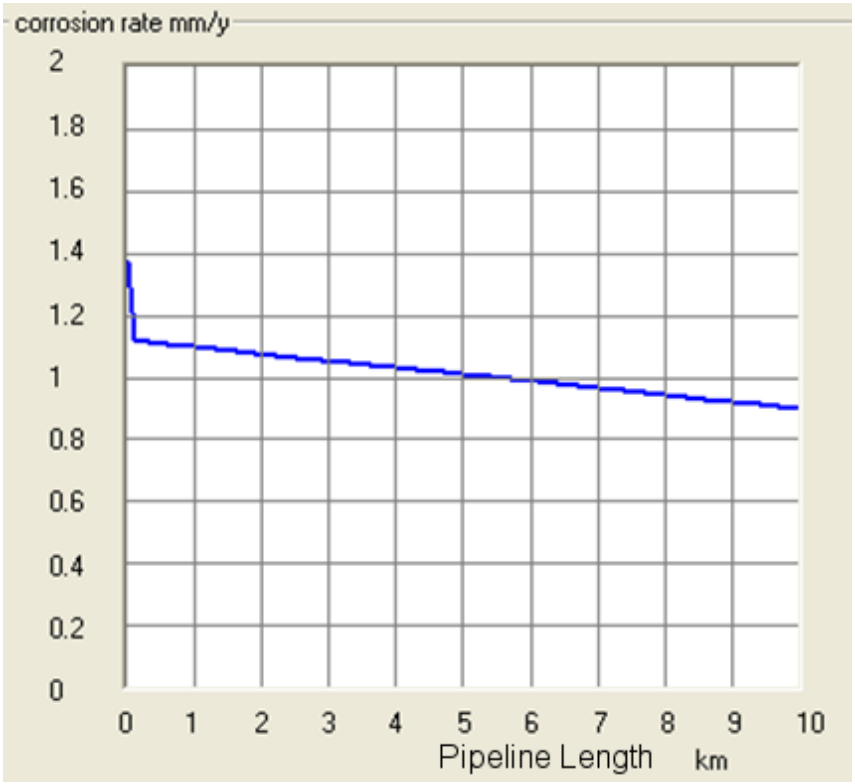
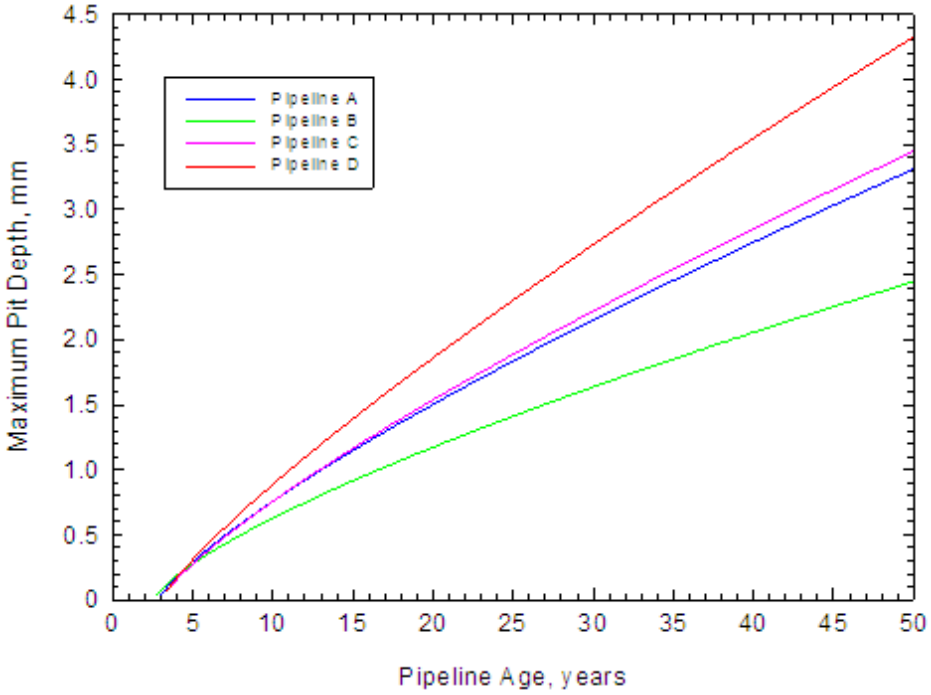
Corrosion Simulation and Corrosion Modeling

Corrosion poses a major risk to many industrial components such as pipelines, storage tanks, and equipment. To estimate the design life or residual life of an industrial component, corrosion rate data for a given material-environment must be known. Using the well-established corrosion predictive models, WebCorr's corrosion simulation and corrosion modeling services will provide the essential corrosion rate data to your design team and the maintenance personnel, making possible a more realistic estimation of the design life or residual life of your pipelines, storage tanks and other equipment.



- Simulation and modeling of carbon dioxide CO2 corrosion (sweet corrosion) in oil and gas pipelines and production tubing.
- Simulation and modeling of hydrogen sulfide H2S corrosion (sour corrosion) in oil and gas pipelines and production tubing.
- Simulation and modeling of bottom of line corrosion (BOL or BLC) in multiphase flow pipelines.
- Simulation and modeling of top of line corrosion (TOL or TLC) in multiphase flow pipelines.
- Simulation and modeling of internal pitting corrosion
- Simulation and modeling external pitting corrosion of buried pipelines

- Simulation and modeling the effects of chemical treatment and corrosion inhibitors on the corrosion rate of specific alloys.
- Simulation and modeling of corrosion in chemical process and pharmaceutical industries
- Simulation and modeling of the effects of process pressure, velocity (flow rate) and temperature (PVT) on the corrosion rate



In the case below, corrosion modeling is the only solution to establish the safe limits (temperature, concentrations of impurities) for the tanks carrying phosphoric acid.

From: [removed]
Sent: Wednesday, March 17, 2010 1:47 PM
To: WebCorr Corrosion Consulting Services Singapore
Cc:
Subject: Consultancy Services - Carriage of Phosphoric Acid in Stainless Steel Ship Tanks

Dear Prof Qiu,

We are a ship-owner with a fleet of stainless steel ocean-going tankers.

Our ships carry Phosphoric Acid cargo from time to time. We would like to know whether a particular grade of Phosphoric Acid is suitable for our stainless steel tankers. We are not able to provide the phosphoric acid sample to you. However we can provide the specifications of phosphoric acid to you.

For example

P2O5	49.0 - 51.0
Sp. Gr	1.65 - 1.67
Fe2O3	min 0.65 pct
Al2O3	min 0.8 pct
MgO	0.45 - 0.55
CaO	0.15 - 0.25
K2O	0.06 - 0.08
Na2O	0.7 - 0.95
SO4	max 4.0 pct
F	max 0.8 pct
Cl	max 200 ppm
Solids	max 1.0 pct

Temp max 45 deg C
Total voyage time about 12-15 days.

Question – can this grade of Phosphoric Acid be carried on our ship cargo tanks made of 316L 2.1% Mo and of 316L 2.7% Mo?
If it cannot be carried because of certain parameters out of limits, please advise the max limits allowed and if the temp is too high, what the max temp allowed?
