

Corrosion Modeling Software and Corrosion Prediction Software

DWD-Compass®: Modeling and Prediction of Corrosion in Drinking Water Distribution Systems

Highly Effective Software Solutions to Copper Tube Corrosion in Drinking Water Distribution Systems

Version 9.20

☆ Performance ☆ Functionality ☆ Usability



Anytime

Anywhere

Any Device

Any OS

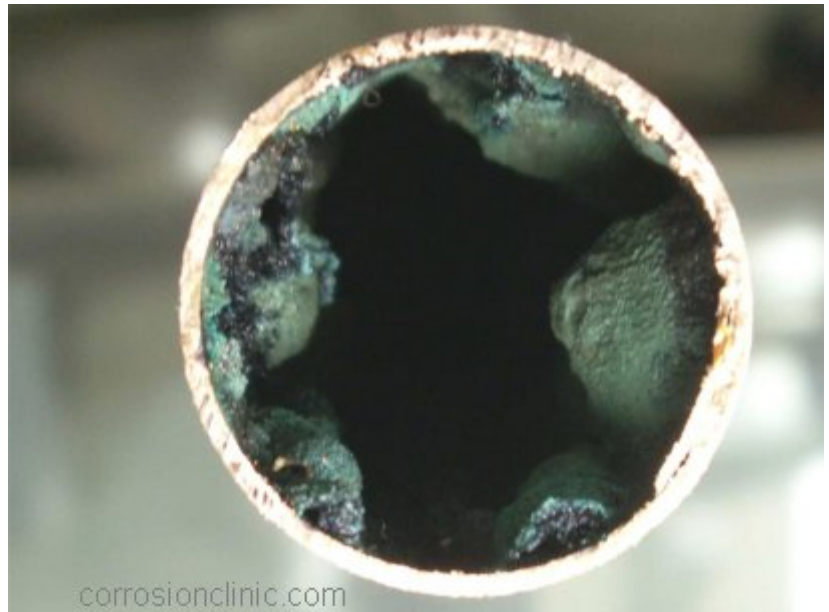
No USB dongles

No installation

No Browser Plug-ins

Overview of DWD-Compass: Modeling and Prediction of Corrosion Drinking Water Distribution Systems

Pinhole leaks in copper pipes and tubing in potable water distribution systems in hotels, hospitals, homes and other residential, commercial, and industrial buildings have been on the rise in recent years. The insidious leaks not only cause losses of water but may also cause serious damages to the walls, ceilings, fittings,



furniture, equipment and other neighboring structures. The leaks often raise health concerns of the quality of drinking water. Some of the critical factors influencing the corrosivity of the drinking water include: water pH, dissolved oxygen in water, water temperature, water velocity, water conductivity, alkalinity, hardness, concentrations of chloride, sulfate, phosphate, dissolved inorganic carbon (DIC), and others. DWD-Compass is the only device and OS independent predictive software on the market for the modeling and life prediction of copper tube corrosion in drinking water distribution systems. Designers, engineers, architects, consultants, maintenance and inspection personnel can quickly assess and quantify the impact of the drinking water chemistry on the copper solubility (also known as cuprosolvency), the standing time to reach the US EPA's action level of 1.3 mg/L, the standing time to reach WHO's limit of 2.0 mg/L, the corrosion rate, the corrosion depth, and the remaining to perforation.

Under the water chemistry shown in Figure 1 below, DWD-Compass predicts that the copper solubility is 0.565 mg/L, the standing time to reach the US EPA's action level of 1.3 mg/L is 303 hours, the standing time to reach the WHO's limit of 2.0 mg/L is 466 hours, the corrosion rate of copper tube is 0.007 mm/y, the corrosion depth is 0.1 mm, the time-to-perforation is 34.363

years, and the mode of failure is general corrosion, erosion, cavitation, and pitting. DWD-Compass also predicts the scaling tendency of the specified water chemistry. The commonly used Langelier Saturation Index (LSI) and Ryznar Stability Index (RSI) are computed for the prevailing operating conditions. The corrosivity of water is predicted and classified in accordance with the LSI results. In Figure 1 below, DWD-Compass predicts that the specified water chemistry is corrosive and has no scale forming tendency.

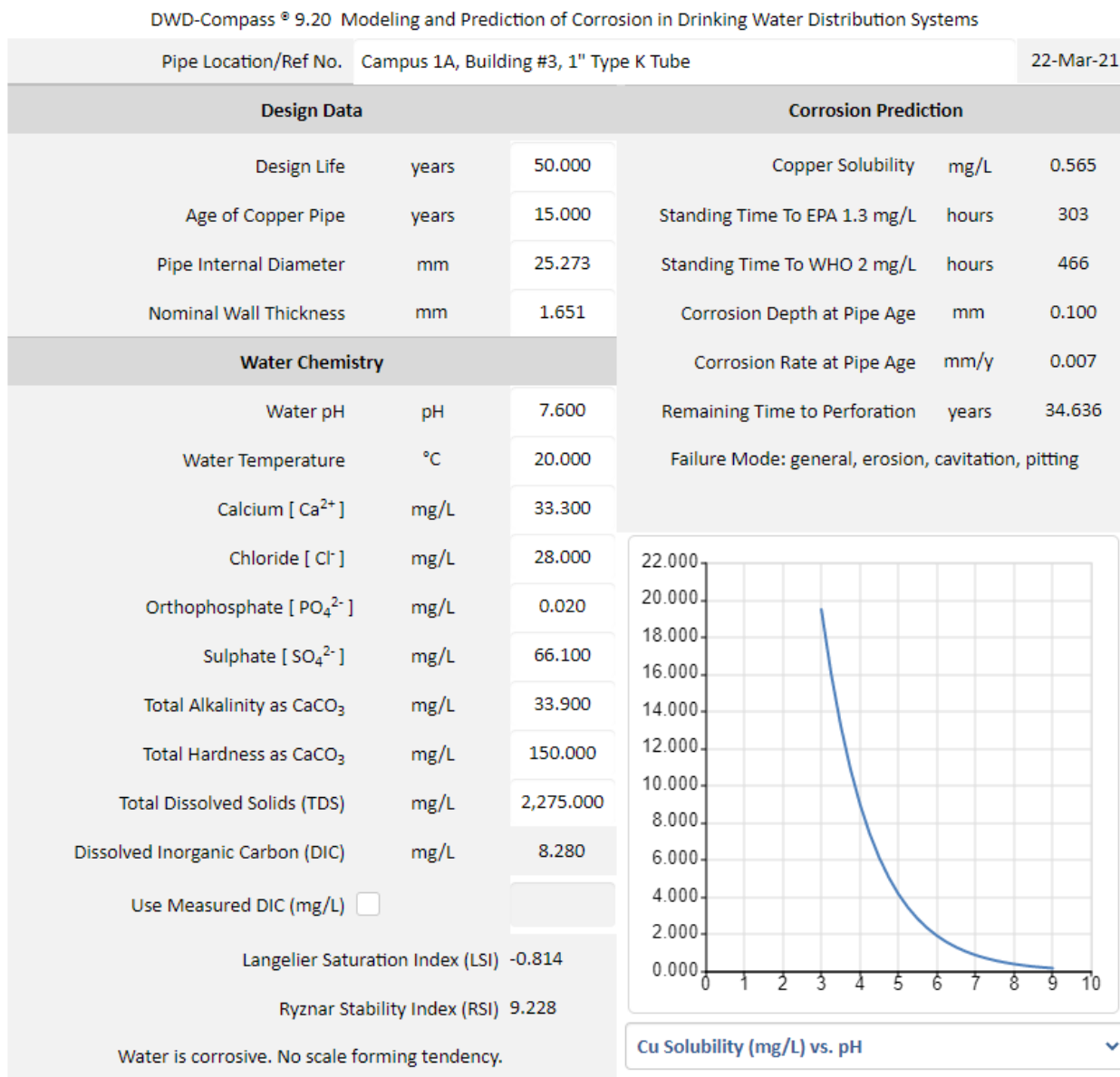


Figure 1 Overview of DWD-Compass.

DWD-Compass models the effects of dissolved inorganic carbon (DIC) and orthophosphate on copper tube corrosion in drinking water distribution systems. The predictive engine in DWD-Compass determines the DIC based on the specified water chemistry (Figure 1). If DIC is

included in the water analysis report, users of the DWD-Compass has the option to override the predicted value by checking the "Use Measured DIC (mg/L)" box (Figure 2) and enter the measured DIC for use by the software. The effects of dissolved inorganic carbon (DIC) and orthophosphate on cuprosolvency are plotted in Figure 2 and Figure 3 respectively.

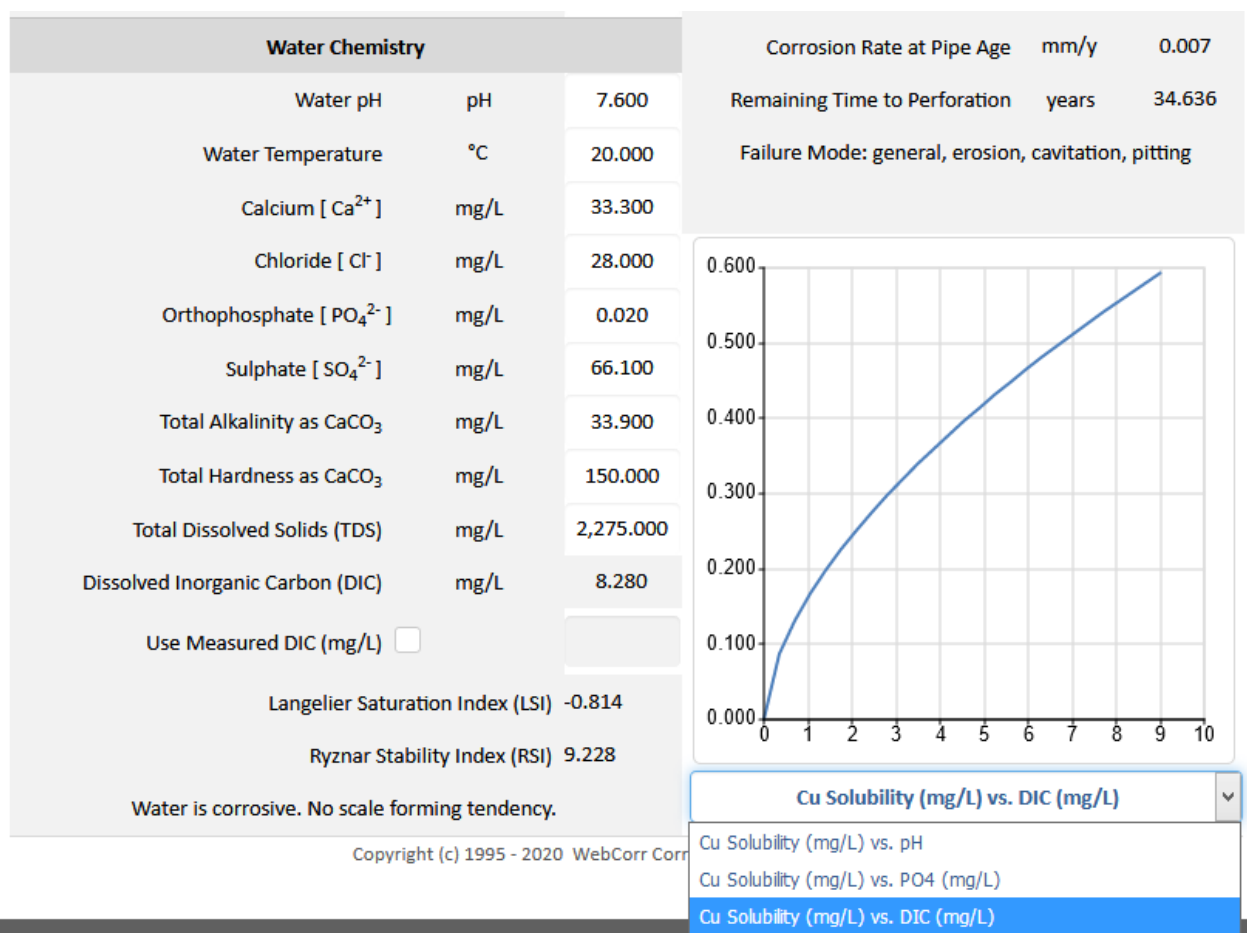
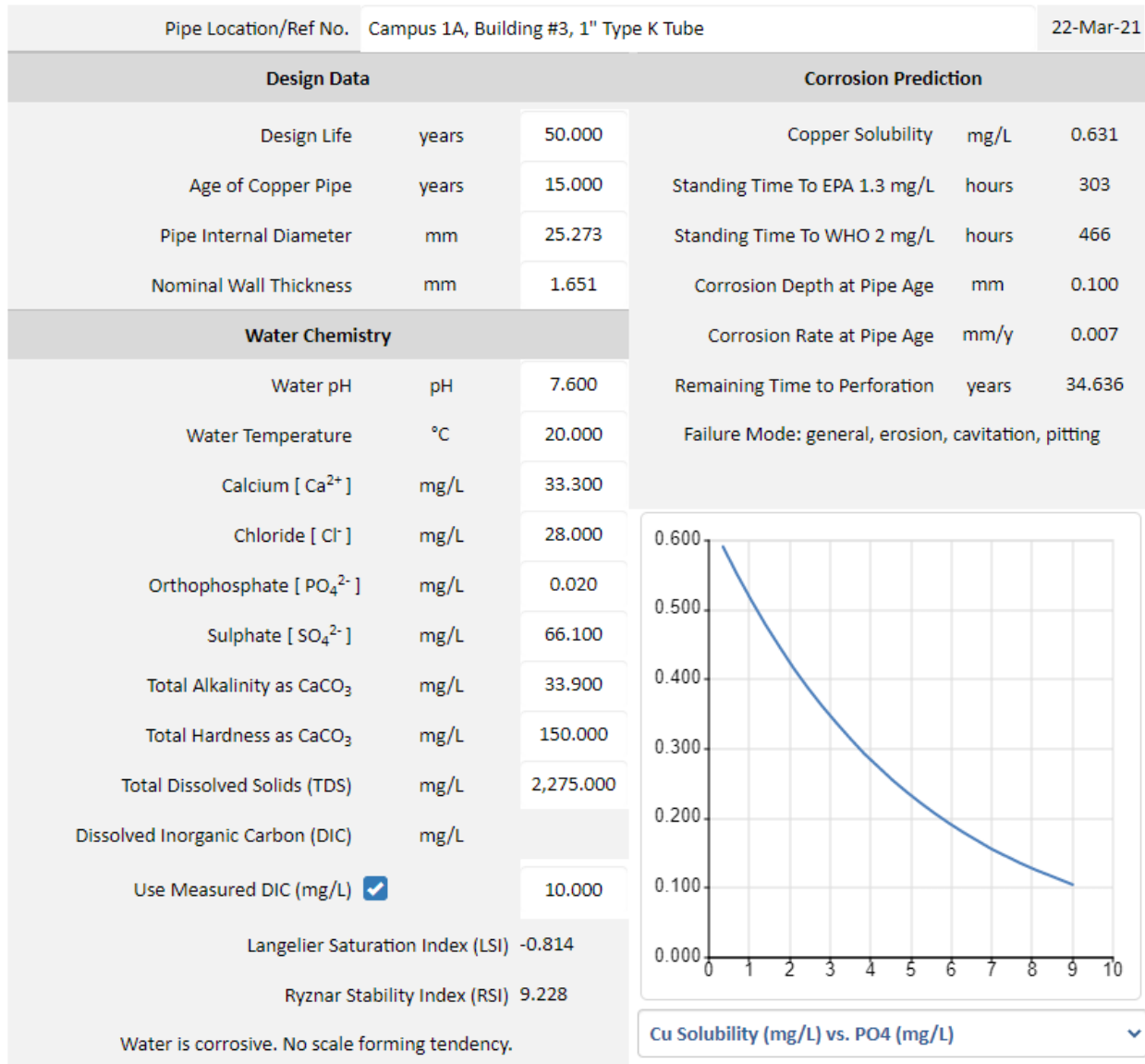


Figure 2 DWD-Compass models the effect of dissolved inorganic carbon (DIC) the copper solubility.



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Figure 3 DWD-Compass models the effect orthophosphate on the copper solubility.

Using DWD-Compass is as easy as 1-2-3:

- (1) Copper tube design data;
- (2) Enter the water chemistry;
- (3) Review the prediction results (Plotting options include: Cu solubility vs. pH; Cu solubility vs. PO₄; Cu solubility vs. DIC).

The powerful applications of DWD-Compass are truly unlimited in modeling and predicting corrosion in drinking water distribution systems. Contact us for licensing details.

DWD-Compass, giving you the right directions in managing corrosion in drinking water distribution systems.