Corrosion Modeling Software and Corrosion Prediction Software

HCl-Compass®: HCl Corrosion Modeling and Prediction

High-Value Software Solutions to Costly Corrosion

Version 9.20

☆ **Performance** ☆ **Functionality** ☆ **Usability**

Anytime Anywhere Any Device Any OS

No USB dongles No installation No Browser Plug-ins

Overview of HCl-Compass

Figures below demonstrate the operation of HCl-Compass. With HCl-Compass, corrosion prediction and materials selection for HCl services are as easy as 1-2-3.

(1) Select the material from the dropdown list,

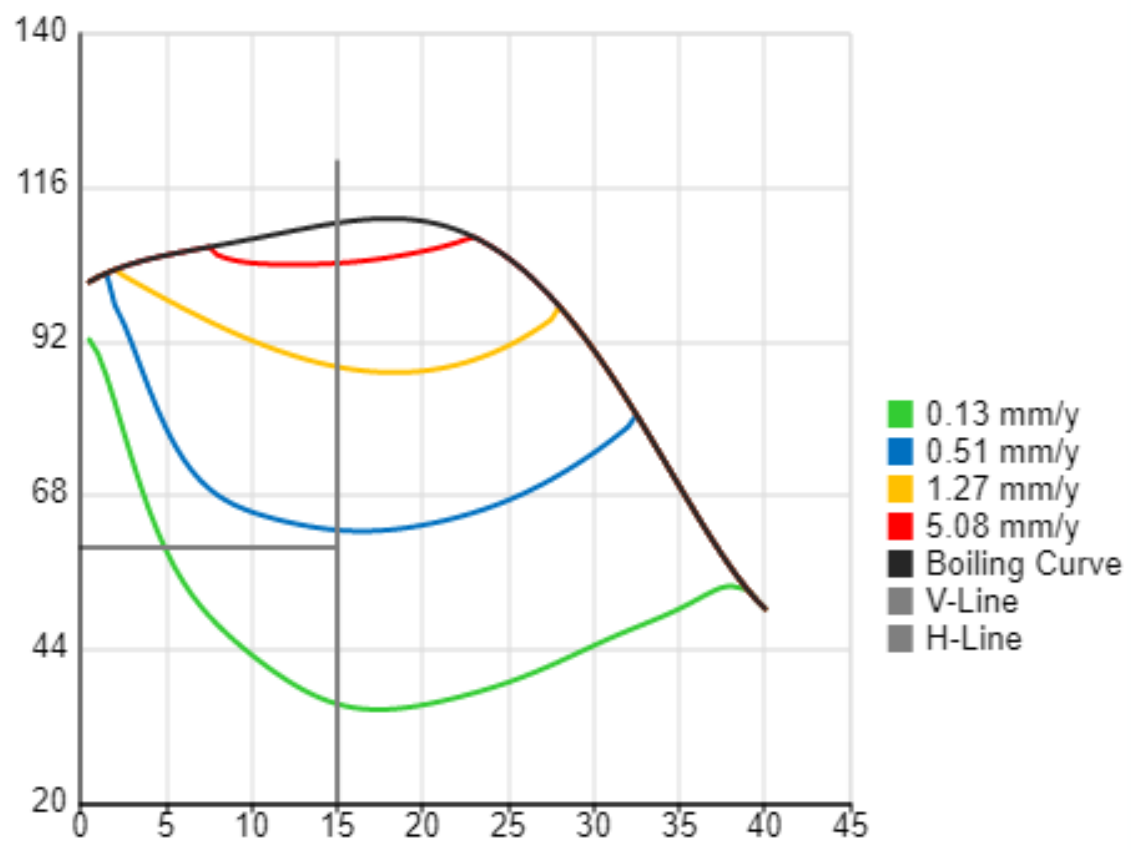
(2) Enter the temperature and the concentration of hydrochloric acid (or the pH, or the chloride concentration)

(3) Review the prediction results

HCl-Compass predicts the specific gravity, the freezing point, and the boiling point of the hydrochloric acid (HCl), the corrosion rate of the selected alloy at the specified temperature and concentration or pH, and the remaining life of the component. In addition to that, HCl-Compass also plots the isocorrosion diagram for the selected alloy so as to give users a complete picture of the corrosion behavior of the selected alloy across the entire ranges of the HCl acid concentration and the service temperature.

HCl-Compass®: Corrosion Prediction and Materials Selection Guide for HCl Services

Equipment ID	Piping #4	
Material	Hastelloy C-276	
Age	years	3.000
Wall Thickness	mm	5.000
Temperature	°C	60.00
Concentration	wt%	15.00
Specific Gravity	kg/L	1.055
Freezing Point	°C	-30.28
Boiling Point	°C	110.53
Corrosion Rate	mm/y	0.4699
Remaining Life	years	7.641



Isocorrosion Chart: Temperature (°C) vs. HCl Concentration (%wt)

Figure 1 HCl-Compass Predicts the Corrosion Rate of Alloys in Hydrochloric Acid Corrosion Services

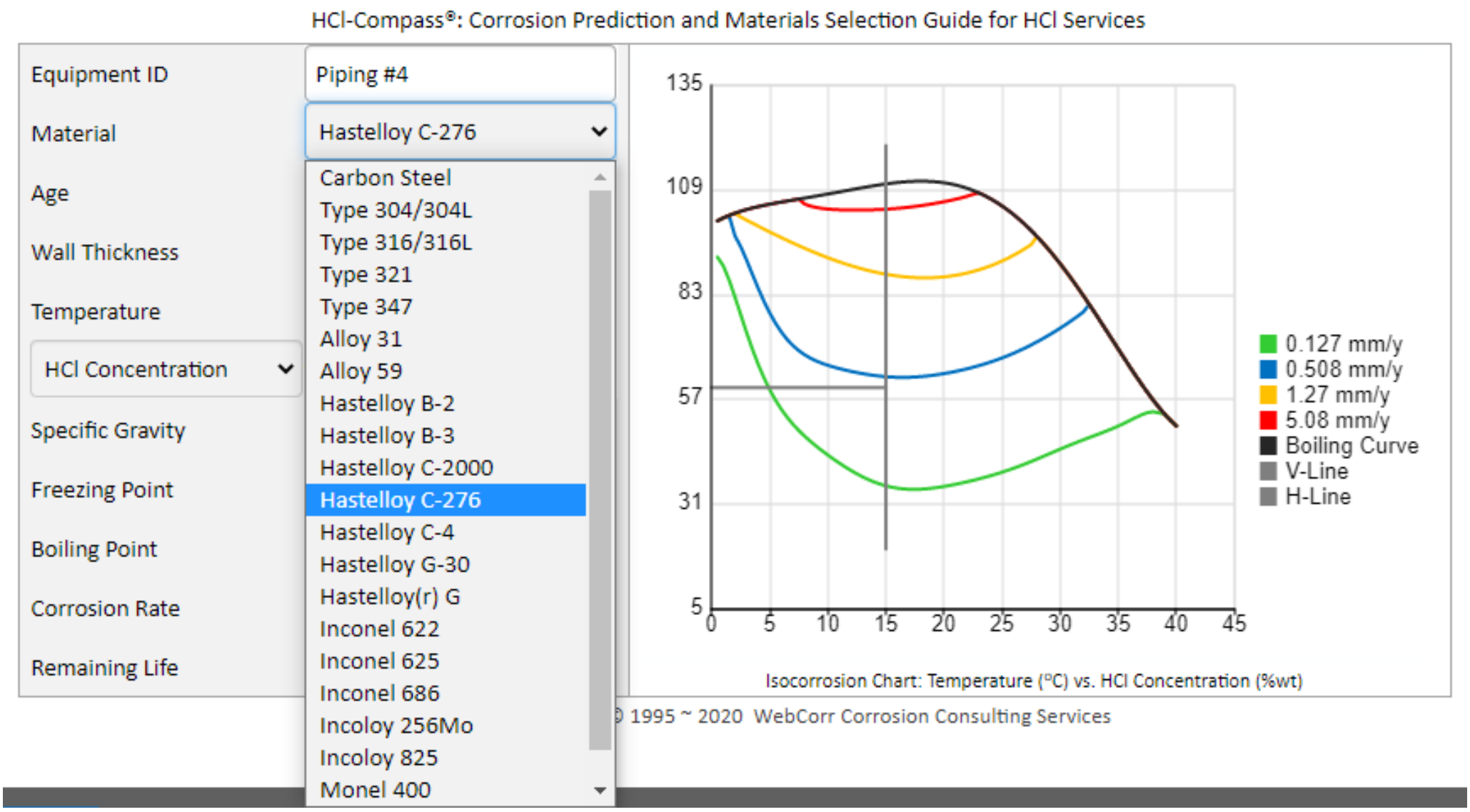


Figure 2 HCl-Compass Predicts HCl Corrosion and Simplifies Materials Selection for Hydrochloric Acid Services

For equipment and piping systems directly handling hydrochloric acid, users can use the acid concentration (wt%) as input parameter to predict the HCl corrosion rate (Figure 3). For dilute HCl condensate as is the case in crude distillation, hydrotreating, and catalytic reforming units where HCl forms by the hydrolysis of magnesium and calcium chloride salts and results in dilute HCl in the overhead system, users can choose to use pH or chloride concentration (in ppmw) as the input parameter to predict the HCl corrosion rate (Figures 4-5).

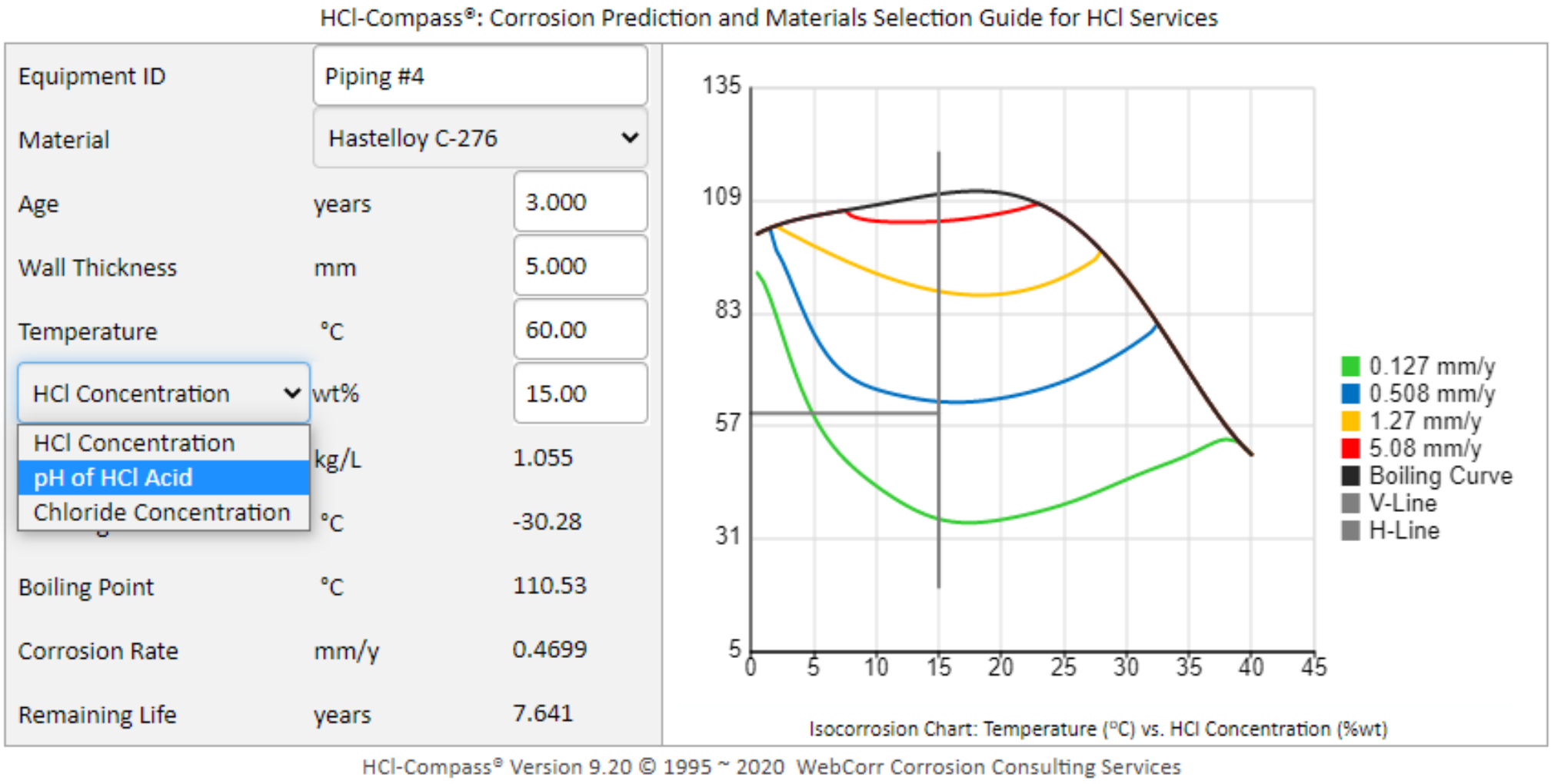


Figure 3 HCl-Compass Predicts and Models the Effects of HCl Concentration, or pH, or Chloride Concentration on the Corrosion Rate

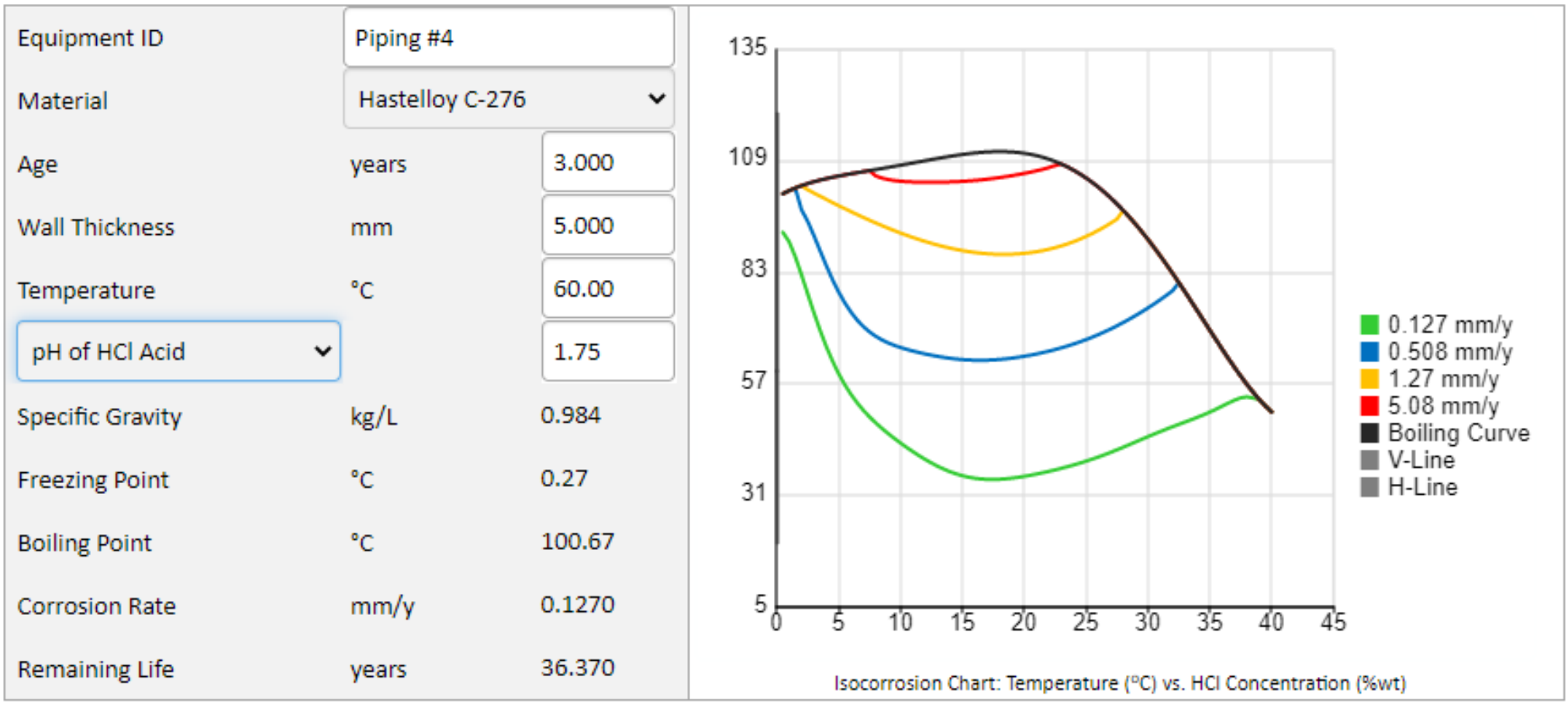


Figure 4 HCl-Compass Predicts and Models the Effects of pH on HCl Corrosion

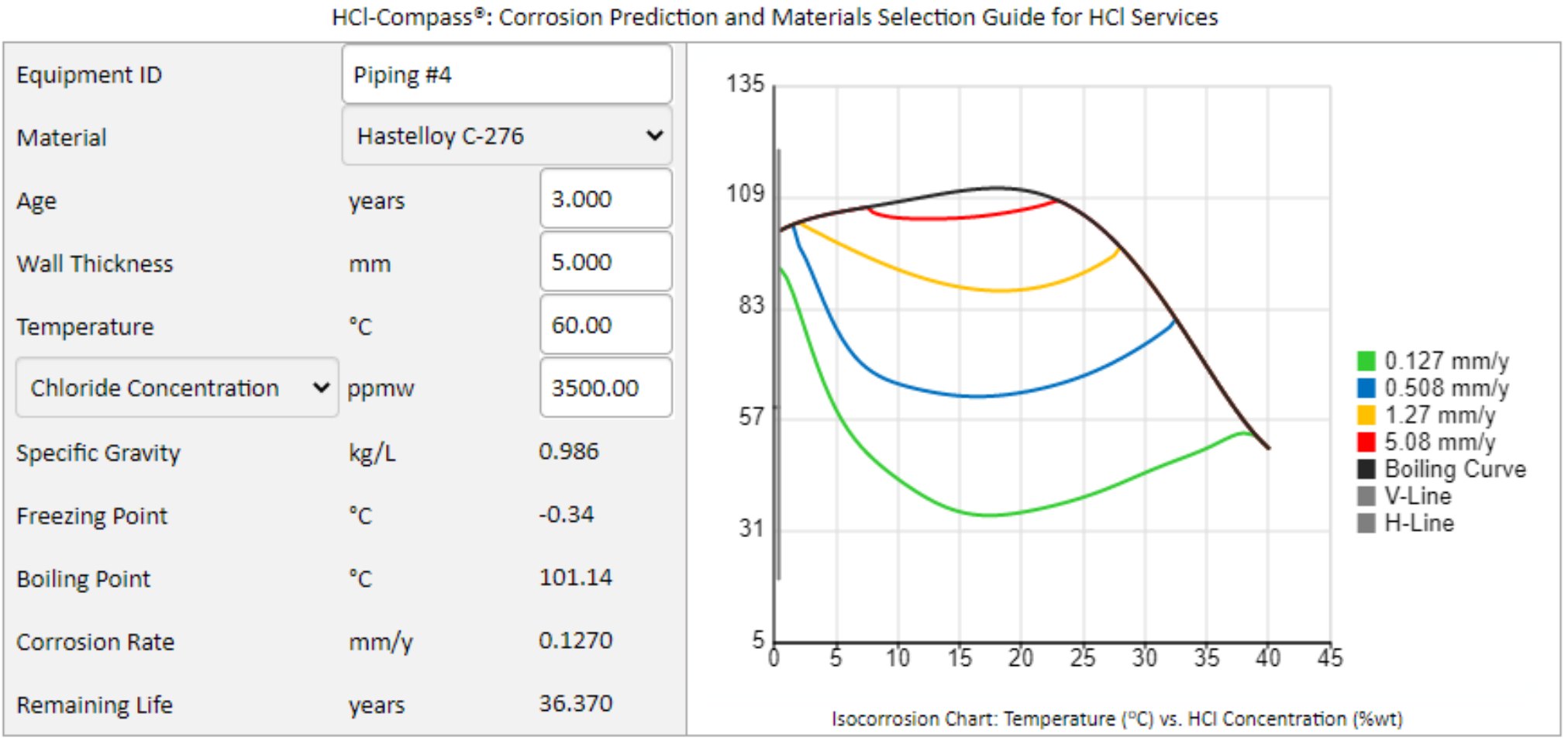


Figure 5 HCl-Compass Predicts and Models the Effects of Chloride Concentration on HCl Corrosion

The powerful applications of HCl-Compass are truly unlimited in engineering design, remaining life prediction, and materials selection for HCl services.

Click here to contact us for licensing details and experience the power of HCl-Compass.

HCl-Compass, giving you the right directions in HCl corrosion prediction and materials selection.

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