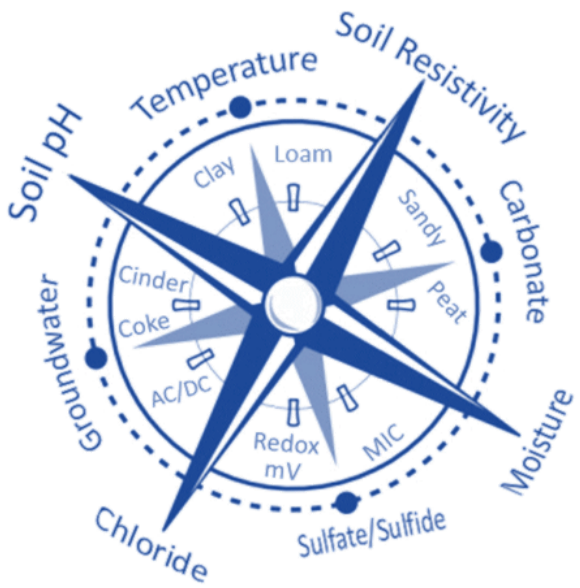

Corrosion Modeling Software and Corrosion Prediction Software

Soil-Compass®: Soil Corrosion Prediction and Modeling for Metals and Alloys

The Ultimate Software Solutions to Costly Soil Corrosion

Version 9.20

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

Anytime Anywhere Any Device Any OS

No USB dongles No installation No Browser Plug-ins

Contact Us for Licensing Details

Why WebCorr | Performance Guarantee | Unparalleled Functionality | Unmatched Usability | Any Device Any OS | Free Training & Support | CorrCompass

Overview of Soil-Compass

Soil corrosion refers to corrosion metals and alloys from exposure to soils. The severity of soil corrosion is determined by many factors, including temperature, moisture and oxygen availability, soil resistivity (soil condition and characteristics), soil type (water drainage capability) and homogeneity (variation in soil type), microbial activities, stray current drainage, and coating type, age, and condition. Soil-Compass is the only device and OS independent software tool on the market for the prediction and modeling of soil corrosion for metals and alloys. Designers, architects, engineers, consultants, operation personnel, maintenance and inspection engineers can quickly determine the corrosion depth, the corrosion rates, and the remaining life of the structure or components, anytime, anywhere, on any device running any OS without the need to install or download anything. Soil-Compass also predicts the soil corrosivity class, the likelihood of microbiologically-influenced corrosion (MIC), DC stray current corrosion and AC corrosion in compliance with ISO 18086. Soil-Compass software models the effects of the following critical factors on soil corrosion:

- Soil type
- Soil temperature
- Soil resistivity
- Soil pH
- Soil moisture content
- Soil chloride content
- Soil carbonate content
- Soil sulfate content
- Soil sulfide content
- Soil redox potential

The outputs of Soil-Compass include the following:

- the soil corrosivity category,
- the corrosion depth,
- the corrosion rate,
- the remaining life or the time-to-perforation,
- the mode of failure,
- likelihood of microbiologically-influenced corrosion (MIC) in the soil environments
- the risk of DC stray current corrosion and AC corrosion.

Figures below show the screen shots of Soil-Compass.

Soil-Compass ® 9.20: Soil Corrosion Prediction and Modeling for Metals and Alloys

Structure Location/ID	ABC Tower at XYZ location				
Material	Ductile Iron		Age of Structure	years	8.000
Nominal Thickness	mm	3.000	Coating Type	Coal-Tar	
Soil Type	Peat		Presence of Groundwater	Seasonal	
Soil Temperature	°C	10	Soil pH	7.00	
Soil Resistivity	Ohm.cm	2,500	Cinder and Coke	None	
Soil Moisture Content	%	40	Sulphate Content	mg/kg	300
Soil Chloride Content	mg/kg	100	Sulphide/H_2S	mg/kg	100
Soil Carbonate Content	%	0	Soil Redox Potential	mV	0
Use the default value if a parameter value is not available.			Predicted Soil Corrosivity		Very Corrosive

Corrosion Prediction

Maximum Corrosion Depth	mm	2.113
Corrosion Rate	mm/y	0.264
Remaining Life (Time to Perforation)	years	6.000
MIC Likelihood	MIC is likely to occur.	
MIC at localized sites may occur at >1.0 mm/y.		

Stray Current and AC Corrosion Prediction

Stray Current Discharge	A/m^2	0.000
Stray Current Corrosion Rate	mm/y	0.000
Soil Corrosivity for AC Corrosion	High	ISO 18086
AC Voltage to Remote Earth	V	30.000
DC Current Density	A/m^2	2.000
AC Corrosion is expected. Mitigation is required.		

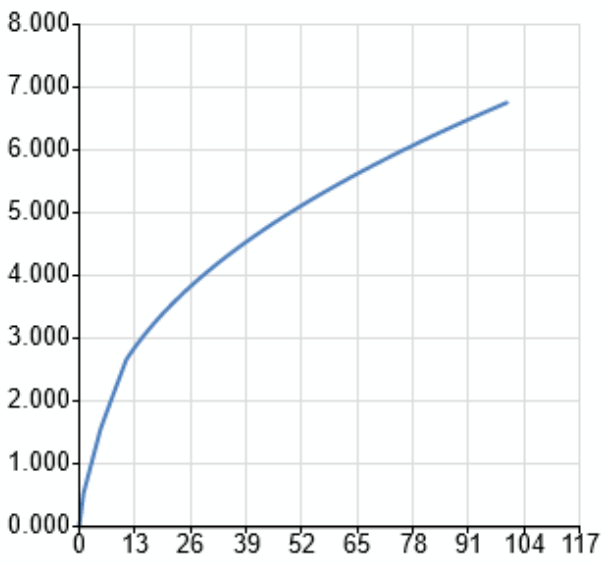

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Figure 1 Soil-Compass Predicts the rate of soil corrosion (including MIC) and the remaining life of structures.

Under the specified exposure conditions shown in Figure 1 above, Soil-Compass predicts, the corrosion rate, the accumulated depth of corrosion at the specified age, and the remaining life of the structure. The predictive engine used in Soil-Compass for the modeling and prediction of soil corrosion of metals and alloys complies with applicable international standard ISO 18086 and relevant industry best practices.

Using Soil-Compass is as easy as 1-2-3.

(1) Select the Material & enter the Age and Thickness of the structure.

(2) Enter the soil property data.

(3) Review the prediction results.

The following figures show the screen shots of Soil-Compass.

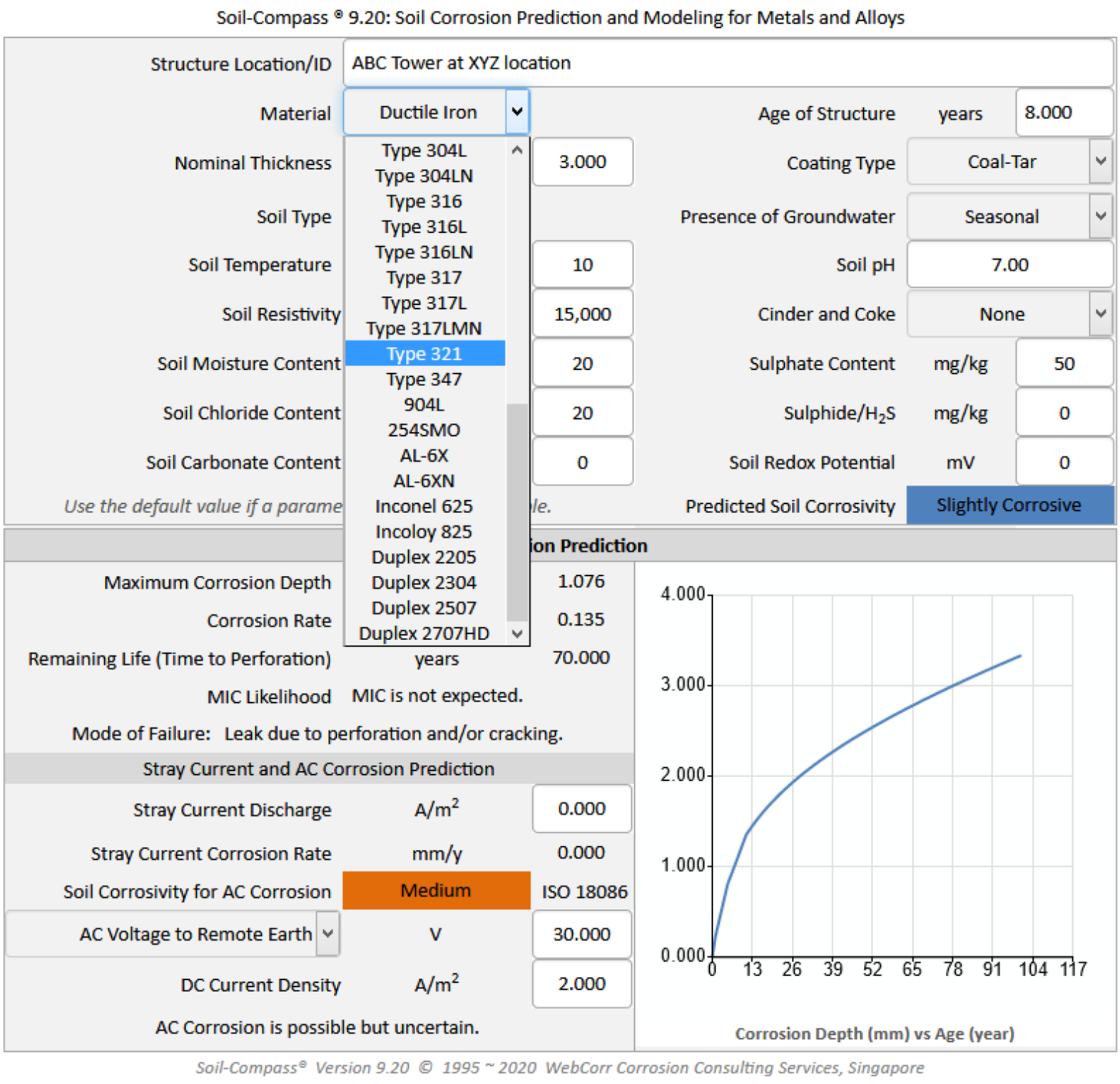

Figure 2 Soil-Compass predicts corrosion of cast irons, steels, stainless steels and alloys exposed to the soil environments.

Soil-Compass ® 9.20: Soil Corrosion Prediction and Modeling for Metals and Alloys

Structure Location/ID	ABC Tower at XYZ location				
Material	Ductile Iron		Age of Structure	years	8.000
Nominal Thickness	mm	3.000	Coating Type		Coal-Tar
Soil Type	Loam		Presence of Groundwater		Seasonal
Soil Temperature	°C	10	Soil pH		7.00
Soil Resistivity	Ohm.cm	15,000	Cinder and Coke		None
Soil Moisture Content	%	20	Sulphate Content	mg/kg	50
Soil Chloride Content	mg/kg	20	Sulphide/H_2S	mg/kg	0
Soil Carbonate Content	%	0	Soil Redox Potential	mV	0
Use the default value if a parameter value is not available.			Predicted Soil Corrosivity		Slightly Corrosive

Corrosion Prediction

Maximum Corrosion Depth	mm	1.076
Corrosion Rate	mm/y	0.135
Remaining Life (Time to Perforation)	years	70.000
MIC Likelihood	MIC is not expected.	
Mode of Failure:	Leak due to perforation and/or cracking.	

Stray Current and AC Corrosion Prediction

Stray Current Discharge	A/m^2	0.000
Stray Current Corrosion Rate	mm/y	0.000
Soil Corrosivity for AC Corrosion	Medium	ISO 18086
AC Voltage to Remote Earth	V	30.000
DC Current Density	A/m^2	2.000
AC Corrosion is possible but uncertain.		

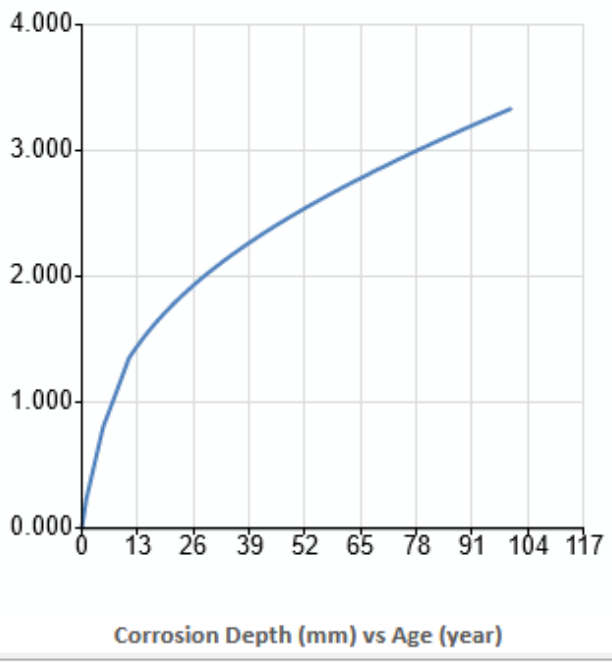

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Figure 3 Soil-Compass predicts soil corrosion of cast iron and other metals and alloys.

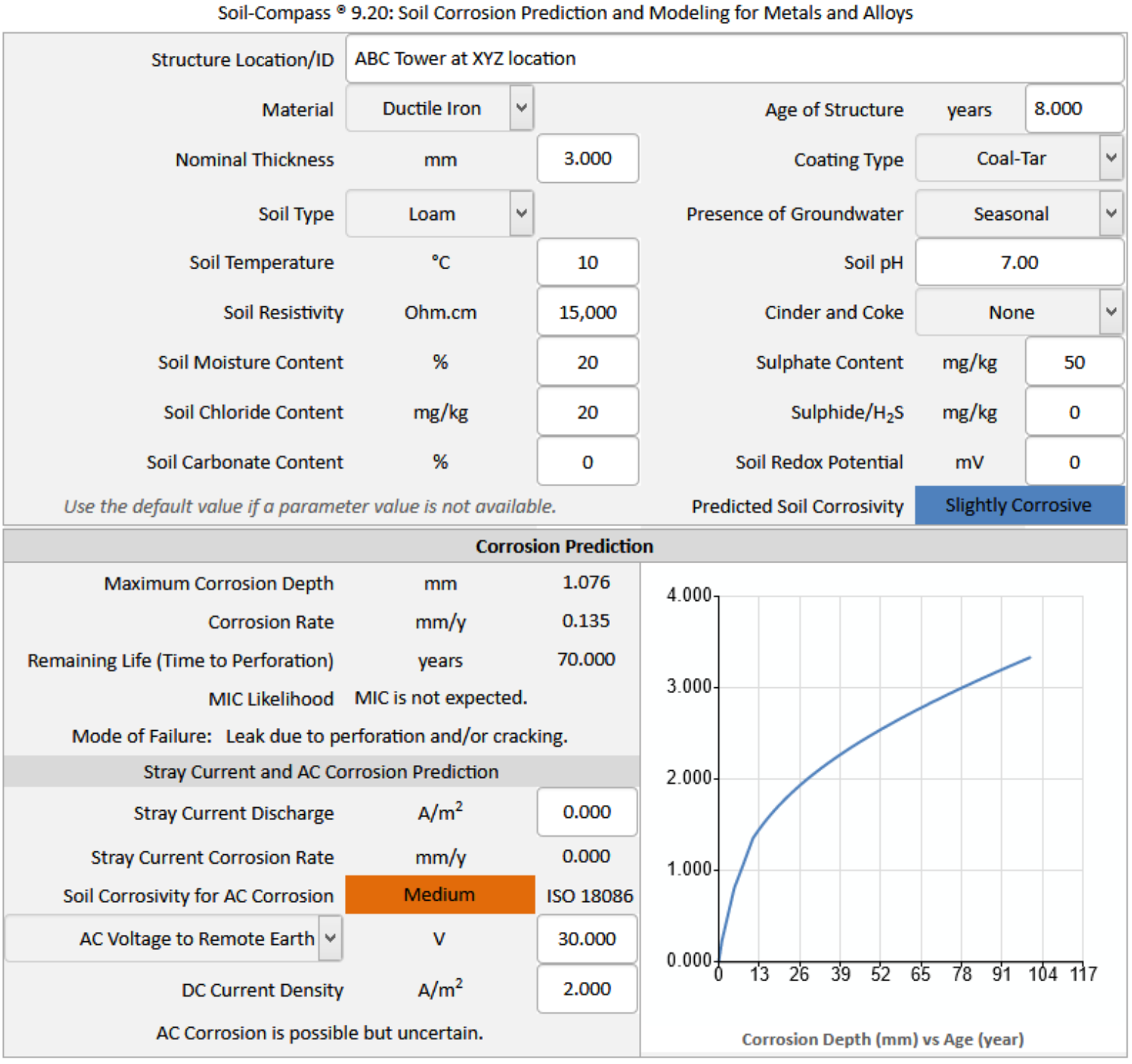

Figure 4 Soil-Compass predicts soil corrosion, soil corrosivity, stray current and AC corrosion.

Soil-Compass models and predicts soil corrosion of metals and alloys including commonly used aluminum alloys, copper, zinc, cast irons, steel and galvanized steel, stainless steels and duplex steels. Following is the list of metals and alloys included in Soil-Compass software:

Al 1100

Al 2017

Al 2024

Al 5052

Al 6053

Cast Iron

Ductile Iron

Open Hearth Iron

Wrought Iron

Steel

Galvanized Steel

Copper

Lead

Zinc

Type 410

Type 430

Type 444

Type 446

Type 304

Type 304L

Type 304LN

Type 316

Type 316L

Type 316LN

Type 317

Type 317L

Type 317LMN

Type 321

Type 347

904L

SMO254

AL-6X

AL-6XN

Inconel 625

Incoloy 825

Duplex 2205

Duplex 2304

Duplex 2507

Duplex 2707HD

The powerful applications of Soil-Compass are truly unlimited in engineering design, corrosion prediction and corrosion modeling, materials selection, and remaining life estimation of structures and components buried in the soil environments.

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