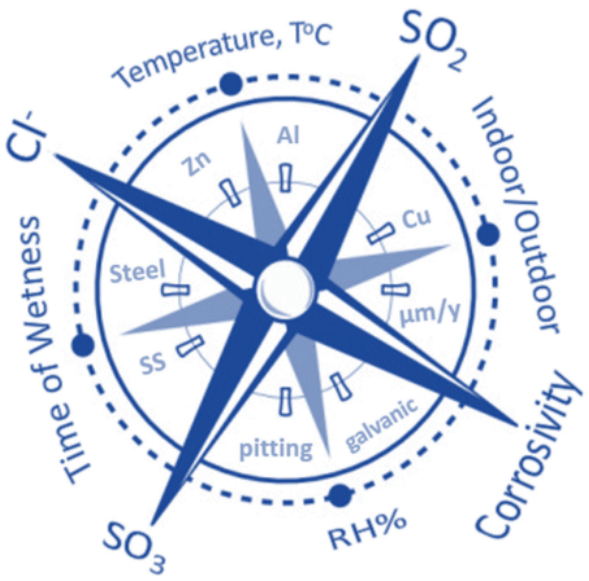


Corrosion Modeling Software and Corrosion Prediction Software

Atmosphere-Compass®: Atmospheric Corrosion Prediction and Modeling for Metals and Alloys

The Ultimate Software Solutions to Costly Atmospheric Corrosion

Version 9.20

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

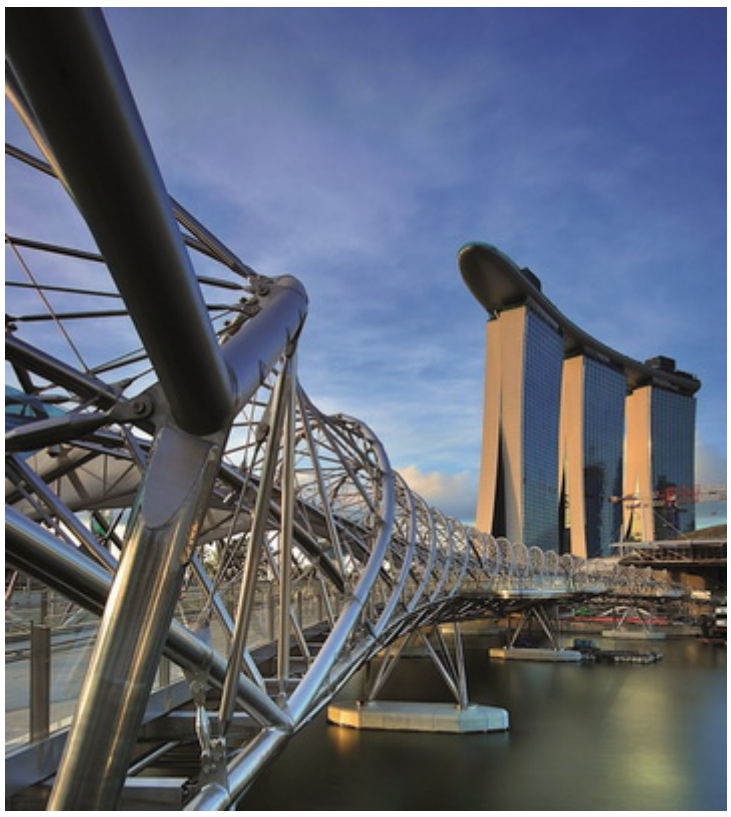
Anytime Anywhere Any Device Any OS

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 Atmosphere-Compass: the Software Tool for Atmospheric Corrosion Prediction and Modeling



Atmosphere-Compass is the only device and OS independent software tool on the market for the prediction and modeling of atmospheric corrosion of metals and alloys in compliance with ISO 9223 and ISO 9224. Designers, architects, OEM engineers, consultants, operation personnel, maintenance and inspection engineers can quickly determine the corrosion rates of metals and alloys exposed to indoor and outdoor atmospheres, anytime, anywhere, on any device running any OS without the need to install or download anything. Atmosphere-Compass also predicts the corrosion depth and the remaining life of equipment or structures based on the following inputs:

- material type/grade
- age of structure
- remaining thickness
- exposure condition -indoor or outdoor
- exposure environment

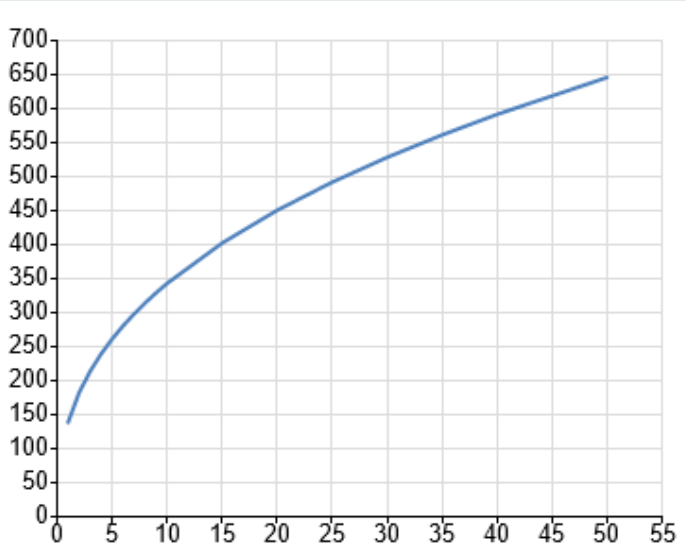
The outputs of Atmosphere-Compass include the following:

- the atmosphere corrosivity category
- the atmosphere corrosivity ranking
- the rust rating number as per Japanese standard JIS G0595 for stainless steels and alloys
- the corrosion depth at the specified age of the equipment or structure
- the corrosion rate at the specified age of the equipment or structure
- the remaining life of the equipment or structure
- a plot of the corrosion depth (μm) vs. exposure time in years

Figures below show the screen shots of Atmosphere-Compass.

ACP-Compass ® 9.20: Atmospheric Corrosion Prediction and Modeling

Structure ID	Roof at Building 5, 123 ABC Street	
Material	Type 410	
Age of Structure	Years	10.000
Remaining Thickness	mm	1.000
Exposure Condition	Outdoor	
Exposure Environment	F	
Corrosivity Category	CX	
Atmosphere Corrosivity	Extreme	
Rust Rating Number & Area Ratio (%)	1	69%
Corrosion Depth (Max)	μm	343.051
Corrosion Rate	μm/y	13.482
Remaining Life	Year	48.728



Corrosion Depth (μm) vs Exposure Time (years)

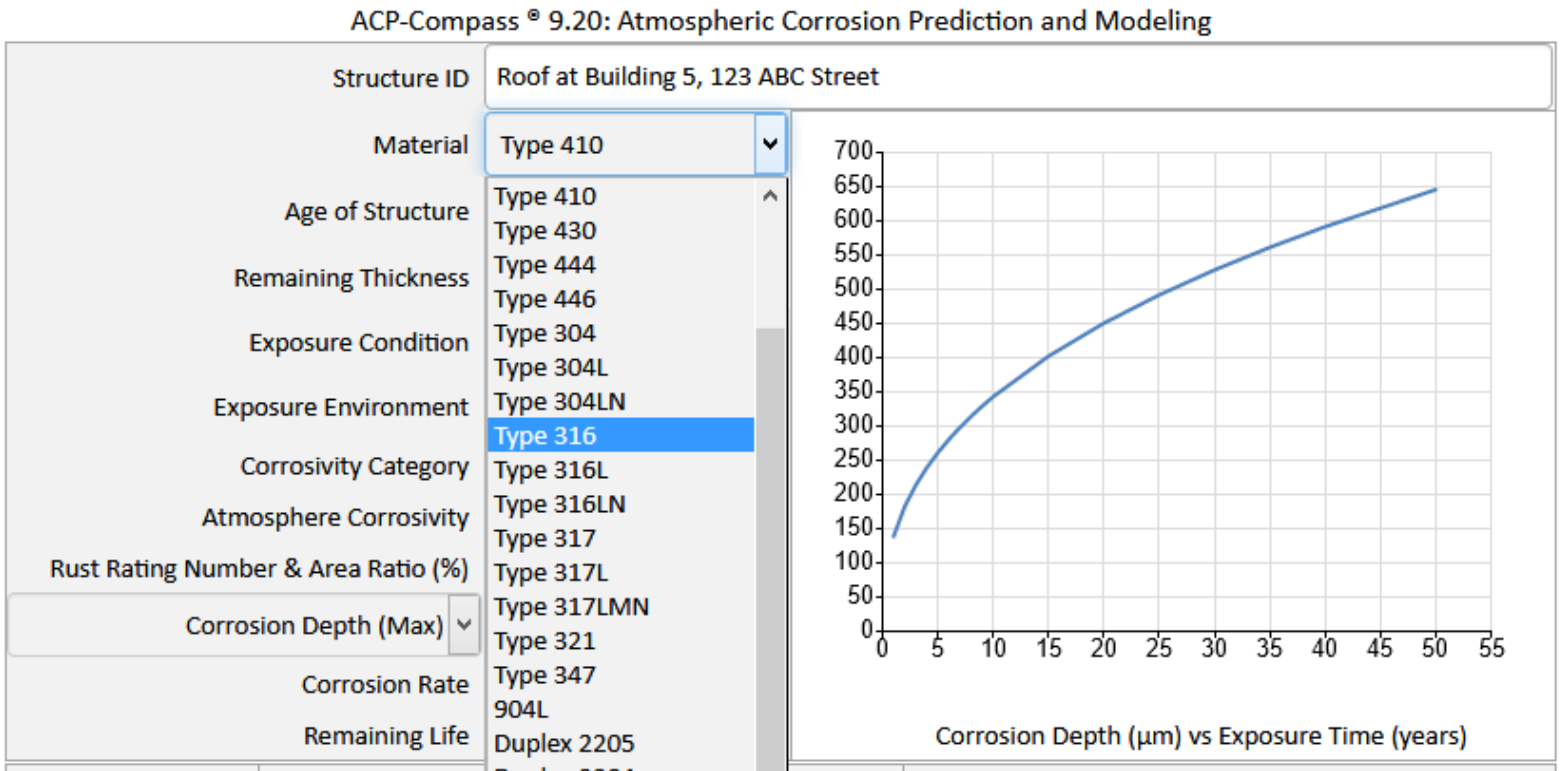
Exposure	Indoor	Outdoor
A	Heated spaces with low relative humidity and insignificant pollution, e.g. offices, schools, museums	Dry or cold zone, atmospheric environment with very low pollution and time of wetness, e.g. certain deserts, Central Arctic/Antarctica.
B	Unheated spaces with varying temperature and relative humidity. Low frequency of condensation and low pollution, e.g. storage, sport halls.	Temperate zone, atmospheric environment with low pollution (SO_2 < 5 μg/m^3), e.g. rural areas, small towns. Dry or cold zone, atmospheric environment with short time of wetness, e.g. deserts, subarctic areas.
C	Spaces with moderate frequency of condensation and moderate pollution from production process, e.g. food-processing plants, laundries, breweries, dairies.	Temperate zone, atmospheric environment with medium pollution (SO_2: 5 μg/m^3 to 30 μg/m^3) or some effect of chlorides, e.g. urban areas, coastal areas with low deposition of chlorides. Subtropical and tropical zone, atmosphere with low pollution.
D	Spaces with high frequency of condensation and high pollution from production process, e.g. industrial processing plants, swimming pools.	Temperate zone, atmospheric environment with high pollution (SO_2: 30 μg/m^3 to 90 μg/m^3) or substantial effect of chlorides, e.g. polluted urban areas, industrial areas, coastal areas without spray of salt water or, exposure to strong effect of de-icing salts. Subtropical and tropical zone, atmosphere with medium pollution.
E	Spaces with very high frequency of condensation and/or with high pollution from production process, e.g. mines, caverns for industrial purposes, unventilated sheds in subtropical and tropical zones.	Temperate and subtropical zone, atmospheric environment with very high pollution (SO_2: 90 μg/m^3 to 250 μg/m^3) and/or significant effect of chlorides, e.g. industrial areas, coastal areas, sheltered positions on coastline.
F	Spaces with almost permanent condensation or extensive periods of exposure to extreme humidity effects and/or with high pollution from production process, e.g. unventilated sheds in humid tropical zones with penetration of outdoor pollution including airborne chlorides and corrosion-stimulating particulate matter.	Subtropical and tropical zone (very high time of wetness), atmospheric environment with very high SO_2 pollution (higher than 250 μg/m^3) including accompanying and production factors and/or strong effect of chlorides, e.g. extreme industrial areas, coastal and offshore areas, occasional contact with salt spray.

ACP-Compass Version 9.20 © 1995 ~ 2020 WebCorr Corrosion Consulting Services, Singapore

Figure 1 Atmosphere-Compass Predicts the rate of atmospheric corrosion and the remaining life of structures.

Under the specified exposure conditions shown in Figure 1 above, Atmosphere-Compass predicts, the corrosion rate, the accumulated depth of corrosion at the specified age, and the remaining life of the structure.

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



Exposure		Outdoor
A	Heated spaces with low relative humidity and insignificant pollution, e.g. offices, schools, museums	Dry or cold zone, atmospheric environment with very low pollution and time of wetness, e.g. certain deserts, Central Arctic/Antarctica.
B	Unheated spaces with varying temperature and relative humidity. Low frequency of condensation and low pollution, e.g. storage, sport halls.	Temperate zone, atmospheric environment with low pollution (SO_2 < 5 µg/m^3), e.g. rural areas, small towns. Dry or cold zone, atmospheric environment with short time of wetness, e.g. deserts, subarctic areas.
C	Spaces with moderate frequency of condensation and moderate pollution from production process, e.g. food-processing plants, laundries, breweries, dairies.	Temperate zone, atmospheric environment with medium pollution (SO_2: 5 µg/m^3 to 30 µg/m^3) or some effect of chlorides, e.g. urban areas, coastal areas with low deposition of chlorides. Subtropical and tropical zone, atmosphere with low pollution.

Figure 2 Atmosphere-Compass Predicts Atmospheric Corrosion of Metals and Alloys.

ACP-Compass ® 9.20: Atmospheric Corrosion Prediction and Modeling

Structure ID	Roof at Building 5, 123 ABC Street	
Material	Type 410	
Age of Structure	Years	10.000
Remaining Thickness	mm	1.000
Exposure Condition	Outdoor	
Exposure Environment	Outdoor / Indoor	
Corrosivity Category	CX	
Atmosphere Corrosivity	Extreme	
Rust Rating Number & Area Ratio (%)	1	69%
Corrosion Depth (Max)	µm	343.051
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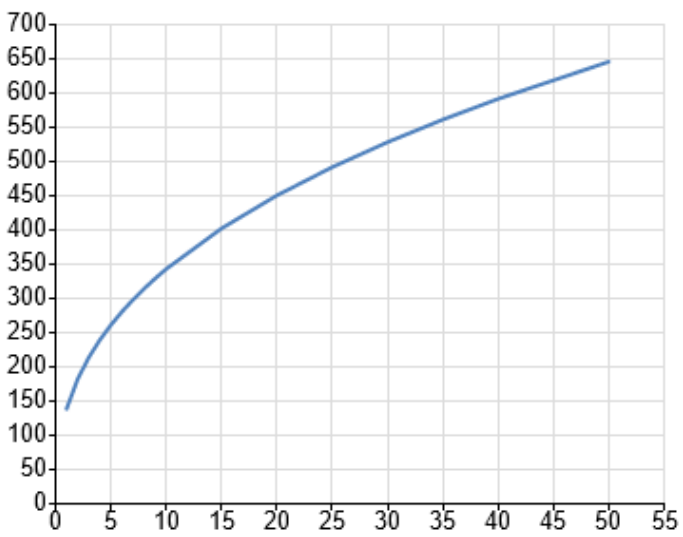

Corrosion Depth (µm) vs Exposure Time (years)

Exposure	Indoor	Outdoor
A	Heated spaces with low relative humidity and insignificant pollution, e.g. offices, schools, museums	Dry or cold zone, atmospheric environment with very low pollution and time of wetness, e.g. certain deserts, Central Arctic/Antarctica.
B	Unheated spaces with varying temperature and relative humidity. Low frequency of condensation and low pollution, e.g. storage, sport halls.	Temperate zone, atmospheric environment with low pollution (SO_2 < 5 µg/m^3), e.g. rural areas, small towns. Dry or cold zone, atmospheric environment with short time of wetness, e.g. deserts, subarctic areas.
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Figure 3 Atmosphere-Compass Predicts Atmospheric Corrosion in Indoor and Outdoor Environments.

Atmosphere-Compass models and predicts atmospheric corrosion of metals and alloys including commonly used stainless steels and duplex steels. Following is the list materials included in Atmosphere-Compass:

Steel

Zinc

Copper

Aluminium

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

254SMO

AL-6X

AL-6XN

Incoloy 825

Inconel 625

Duplex 2205

Duplex 2304

Duplex 2507

Duplex 2707HD

The powerful applications of Atmosphere-Compass are truly unlimited in engineering design, corrosion prediction and corrosion modeling, materials selection, and remaining life estimation of equipment and structures exposed to atmospheric environments.

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

Atmosphere-Compass, giving you the right directions in Atmospheric Corrosion Prediction and Modeling

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