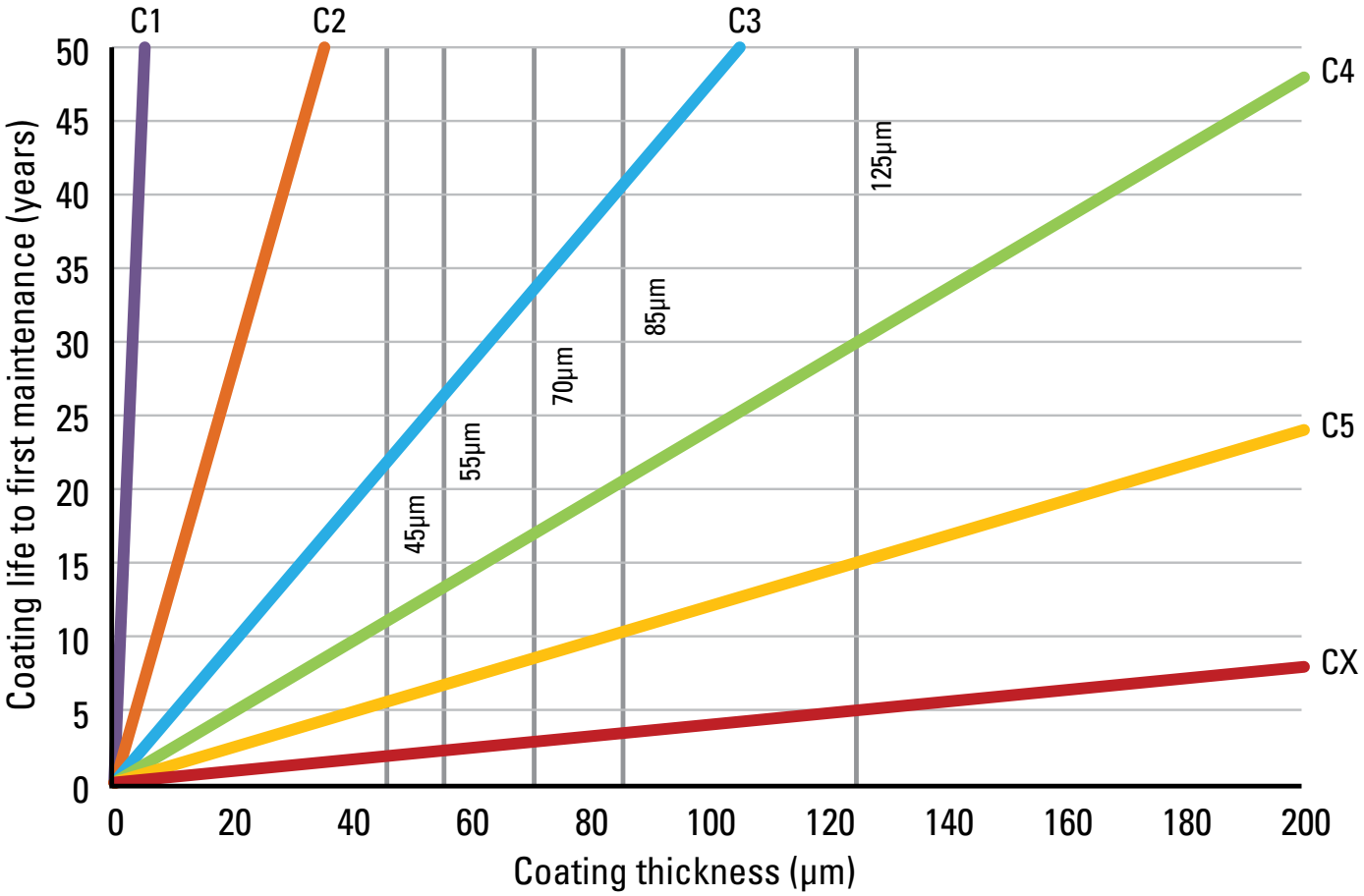
Time to First Maintenance Chart for

Hot Dip Galvanized Steel to AS/NZS 4680



Notes

The Time to First Maintenance (TFM) Chart was developed from ISO 9223 and ISO 14713 data.

Zinc coating thickness is linearly related to the time to first maintenance of hot-dip galvanized steel produced to AS/NZS 4680.

The graph is based on macroscopic environmental data and thus may vary from the actual corrosion rate observed, due to site-specific environmental conditions.

The corrosivity zone (C1 to CX) can be determined from the flow chart overleaf.

Atmospheric levels of airborne salinity, precipitation, temperature, relative humidity and sulfur dioxide influence actual corrosion rates in a specific geographic location.

Surfaces which are sheltered and not rain-washed, in a marine atmospheric environment where chlorides are deposited, can experience a higher corrosivity category due to the presence of hygroscopic salts.

The chart shows that steel with an initial coating thickness of 85 µm in a C4 corrosivity zone will have an expected life to first maintenance of 20 – 40 years.

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Determining the Macro-Environment for Indoor & Outdoor Conditions (as per AS 4312 & ISO 9223)

Are you within a subtropical or tropical zone (very high time of wetness) with an atmospheric environment consisting of very high pollution (SO_2 > 250 µg/m^3) including accompanying & production factors &/or strong effect of chlorides (e.g. extreme industrial areas, ocean & offshore areas, occasional contact with salt spray)?

Are you in a space with almost permanent condensation or extensive periods of exposure to extreme humidity effects &/or with high pollution from production process, e.g. unventilated sheds in humid tropical zones with penetration of outdoor pollution including airborne chlorides & corrosion-stimulating particulate matter?

Yes → Extreme Corrosivity CX

No ↓

Are you within a temperate or subtropical zone with an atmospheric environment consisting of very high pollution (90 µg/m^3 < SO_2 ≤ 250 µg/m^3) &/or significant effect of chlorides, e.g. industrial areas, jetties & other offshore structures, within a few hundred metres of the ocean & sheltered positions on the coastline?

Are you in a space with very high frequency of condensation &/or with high pollution from production process, e.g. mines, caverns for industrial purposes, unventilated sheds in subtropical & tropical zones?

Yes → Very High Corrosivity C5

No ↓

Are you in a temperate zone with an atmospheric environment consisting of high pollution (30 µg/m^3 < SO_2 ≤ 90 µg/m^3) or substantial effect of chlorides, e.g. less than two kilometres from polluted urban areas, industrial areas or between a few hundred metres & a kilometre of the ocean or within one hundred metres of sheltered coastal areas without spray of salt water?

Are you in a subtropical or tropical zone with an atmosphere with medium pollution?

Are you in a space with high frequency of condensation & high pollution from a production process, e.g. industrial processing plants, swimming pools?

Yes → High Corrosivity C4

No ↓

Are you in a temperate zone with an atmospheric environment with medium pollution (5 µg/m^3 < SO_2 ≤ 30 µg/m^3) or some effect of chlorides, e.g. urban areas, between a kilometre & twenty to fifty kilometres (depending on winds & topography) from the ocean, or within one hundred metres of sheltered coastal areas with low deposition of chlorides?

Are you in a subtropical or tropical zone with an atmosphere with low pollution?

Are you in a space with moderate frequency of condensation & moderate pollution from production process, e.g. food-processing plants, laundries, breweries, dairies?

Yes → Medium Corrosivity C3

No ↓

Are you in a temperate zone with an atmospheric environment with low pollution (SO_2 < 5 µg/m^3), e.g. rural areas, small towns?

Are you in a dry zone with an atmospheric environment with short time of wetness, e.g. desert areas?

Are you in an unheated & un-air-conditioned space with varying temperature & relative humidity with low frequency of condensation & low pollution, e.g. storage rooms or buildings, sport halls?

Yes → Low Corrosivity C2

No ↓

Are you in a dry zone with an atmospheric environment with very low pollution & time of wetness, e.g. certain deserts?

Are you in a dry, continually heated or air-conditioned space with low relative humidity & insignificant pollution, e.g. offices, schools, museums?

Yes → Very Low Corrosivity C1

Hot Dip Galvanizing – First and last line of defence

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