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Salt Spray & Coating Test Methods

NSS / AASS / CASS differences, duration tiers, coating codes and minimum salt-spray hours

GB/T 10125 · **GB/T 5267.1** · **NSS / AASS / CASS** · **standard-method explainer**

1 · The three salt-spray methods

Method	Name	Chamber temp.	Solution pH	Additive
NSS	Neutral salt spray	35 °C ±2 °C	6.5–7.2	None
AASS	Acetic acid salt spray	35 °C ±2 °C	3.1–3.3	Acetic acid
CASS	Copper-accelerated acetic acid salt spray	50 °C ±2 °C	3.1–3.3	$CuCl_2 \cdot 2H_2O$ 0.26 g/L

NSS is the most common; AASS / CASS target copper+nickel+chromium decorative coatings and anodized aluminium. All three are accelerated screening tests, not for predicting long-term corrosion or ranking materials.

2 · Recommended duration tiers

2 h, 6 h, 24 h, 48 h, 96 h, 168 h, 240 h, 480 h, 720 h, 1008 h

Choose from the above when no product specification applies; the acceptance hours are agreed in the supply contract.

3 · Coating code → minimum NSS hours

Coating system	Code	No white corrosion min (h)	No red rust @5 µm (h)	@8 µm (h)	@12 µm (h)
Zinc, clear passivation	Zn//An/T0	8	48	72	96
Zinc, iridescent passivation	Zn//Cn/T0	72	120	192	240
Zinc, iridescent passivation, sealed	Zn//Cn/T2	120	168	240	288
Zinc, black passivation, sealed	Zn//Fn/T2	24 (d)	72	144	192
Zinc-iron, iridescent passivation	ZnFe//Cn/T0	96	144	216	264
Zinc-iron, iridescent passivation, sealed	ZnFe//Cn/T2	120	216	288	360
Zinc-iron, black passivation, sealed	ZnFe//Fn/T2	96 (d)	192	240	312
Zinc-nickel, silver-grey passivation	ZnNi//Cn/T0	120	480	720	720 (e)
Zinc-nickel, silver-grey passivation, sealed	ZnNi//Cn/T2	168	600	720	720 (e)
Zinc-nickel, black passivation	ZnNi//Fn/T0	48 (d)	360	600	720 (e)
Zinc-nickel, black passivation, sealed	ZnNi//Fn/T2	120 (d)	480	720	720 (e)

Reading: no-white-corrosion is a single column; no-red-rust is split by 5 / 8 / 12 µm. d = white haze allowed at that tier (white haze is not counted as white corrosion); e = 720 h is the table's upper bound. Values apply to barrel-plated parts with Cr(VI)-free passivation in the "as-coated" state, tested at least 24 h after plating.

4 · How to read a salt-spray report

- Tell white haze, white rust and red rust apart: white haze is a light reaction of the medium with zinc (natural on zinc-nickel, accept it); white rust is broad corrosion of the zinc/zinc-alloy layer (visible when wet); red rust is corrosion of the base metal — the "no red rust" endpoint.
- Check the basis: the report should state the method (NSS / AASS / CASS), duration, thickness tier (5 / 8 / 12 µm) and the acceptance criterion.
- Do not convert to service life: salt-spray hours do not equal years of service life; they are for batch comparison and consistency screening only.

5 · How to request from a supplier

Specify on order: the coating code (e.g. Zn//Cn/T2), the thickness tier (e.g. 8 µm) or the minimum NSS hours instead (e.g. 240 h no red rust), the method (NSS) and sampling. Measured salt-spray reports are commissioned per order.

6 · Disclaimer

This guide explains standard methods, not our products' measured values; the hours in the table are the standard's requirements for coating systems (parameter-level citation), not a claim that "our products passed N hours of salt spray". Measured reports are commissioned per order.

Data sources

1. GB/T 10125-2021 distillation (/data/standards/GB-T-10125-2021.md): NSS/ASS/CASS method parameters and recommended durations (parameter-level citation)
2. GB/T 5267.1-2023 distillation (/data/standards/GB-T-5267.1-2023.md): Table 8 coating code → minimum NSS hours, 11 rows (parameter-level citation)
3. This guide is an original standard-method explainer, not our products' measured values; measured reports are commissioned per order

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