

Title: Rocor NB Product Dosage Guidance

Date: 5th Dec 24

Revision: 1

NALFLEET™ Rocor NB Liquid is a highly effective engine cooling water system treatment. Proprietary blend of active corrosion inhibitors offer optimum corrosion protection for the common ferrous and non-ferrous metals found in engine cooling water systems.

The Rocor NB Product Dosage guidance is segregated into 3 parts:

Part A: Control Guideline and dosage

Part B: Working examples of dosage estimation

Part C: General Application Notes

Part A: Control Guideline and dosage

Nitrite Control limits for Rocor NB: 1,000-2,400 ppm nitrite (as NO₂), **recommended routine maintenance nitrite residual** = 1,440 ppm (as NO₂)

The nitrite (as NO₂) control guideline and dosage for Rocor NB as below

1. **Minimum** = 1,000 ppm and required dosage of Rocor NB = 9L/m³
2. **Maximum** = 2,400 ppm and required dosage of Rocor NB = 21L/m³
3. **Recommended (routine maintenance)** = 1,440 ppm, and required dosage of Rocor NB = 13L/m³

Note:

- To increase nitrite residual by 100 ppm, required dosage of **Rocor NB** = 1L/m³ of distilled or technical water
- Above mentioned product dosage is an estimation only, system required dosage may varies due to water quality, system demand, and other variations.

Part A1: Control Guideline and dosage (MAN Engine Only)

Nitrite Control limits for Rocor NB: > 2,400 ppm nitrite (as NO₂), **recommended routine maintenance nitrite residual** = 2,600 ppm (as NO₂)

The nitrite (as NO₂) control guideline and dosage for Rocor NB as below

4. **Minimum** = 2,400 ppm and required dosage of Rocor NB = 21.5 L/m³
5. **Maximum** = 3,000 ppm and required dosage of Rocor NB = 27 L/m³
6. **Recommended (routine maintenance)** = 2,600 ppm, and required dosage of Rocor NB = 23L/m³

Note:

- To increase nitrite (as NO₂) residual by 100 ppm, required dosage of **Rocor NB** = 1L/m³ of distilled or technical water
- Above mentioned product dosage is an estimation only, system required dosage may varies due to water quality, system demand, and other variations.

Part B: Working examples of dosage estimation:

- **New cooling system (e.g. Nitrite residual = 0) :** Recommended dosage is 13 L/m³, app. 1,440 ppm nitrite.
- **Existing operating cooling water system (e.g. some nitrite residual presence but below recommended guideline):** Assuming system measured nitrite residual at 1,000 ppm and to increase nitrite residual to 1,440 ppm, required nitrite = 440 ppm = 4.4L of Rocor NB is needed.

Part B1: Working examples of dosage estimation (MAN Engine Only):

- **New cooling system (e.g. Nitrite residual = 0) :** Recommended dosage is 23 L/m³, app. 2,600 ppm nitrite.
- **Existing operating cooling water system (e.g. some nitrite residual presence but below recommended guideline):** Assuming system measured nitrite residual at 2,200 ppm and to increase nitrite residual to 400 ppm, required nitrite = 400 ppm = 4.0L of Rocor NB is needed.

Part C: General Application Notes

1. Buffering agents blended in NALFLEET(tm) Rocor NB Liquid helps to maintain pH values within suitable limits when the product is dosed as recommended. Normal pH should be maintained between 8.0 and 11.0 by the treatment.
2. The engine manufacturer's recommendations for water quality should always be complied with.
3. Chloride levels should always be as low as possible. Most engine manufacturers recommend a maximum of 50 ppm chlorides.
4. For this reason, Wilhelmsen Ships Service recommends the use of distilled water as make-up.

Appendix 1: Rocor NB Dosage Guidance
Table 1: Min, max and recommended nitrite and required Rocor NB product dosage

Product	Nitrite (as NO ₂)	Target Nitrite (as NO ₂)	Product Dosage (L/m ³)
Rocor NB	Min	1,000	9
	Max	2,400	21
	Recommended	1,440	13
	100 ppm	100	1

Table 2: Min, max and recommended nitrite and required Rocor NB product dosage (MAN Engine Only)

Product	Nitrite (as NO ₂)	Target Nitrite (as NO ₂)	Product Dosage (L/m ³)
Rocor NB	Min	2,400	21.5
	Max	3,000	27.0
	Recommended	2,600	23.0
	100 ppm	100	1

Graph 1: Rocor NB Product Dosage Chart.
