HYUNDAI GLOBAL SERVICE
Centum Science Park, 79, Centum jungang-ro, Haeundae-gu, Busan 48058, Korea
Tel : +82 52 204 7860 / FAX: +82 52 204 7801 / E-MAIL : service@hyundai-gs.com

Service Letter

Date : July 22, 2020
Ref. No.: HGS-SCR-SL-20-006

Subject: 40% urea solution quality for NoNOx SCR system

Product: ALL NoNOx SCR

To whom it may concern,

As the number of delivered NoNOx SCR is getting increased, we have received several queries for NoNOx SCR, especially the quality of 40% urea solution.

This letter is to inform the customers of the allowable urea concentration of 40% urea solution and of precautions for quality control.

For more details, please refer to the attached technical information, TI2020-K2F0-005-R1.

Should you have any queries, please feel free to contact us.

Faithfully yours,

H. L. Oh, General Manager

Machniery Service Dep't

Technical Division

http://www.hyundai-gs.com

[EOD]

HYUNDAI | ENGINE & MACHINERY
HEAVY INDUSTRIES

TECHNICAL INFORMATION

DOC No.: TI2020-K2F0-005-R1
Date : July 15, 2020

SUBJECT : 40% urea solution quality for NoNOx SCR system

TYPE: All NoNOx SCR

DISTRIBUTION

☑ Ship yard	☑ Ship owner

Date	TI No.	Write	Checked	Approve	Change	R
200616	TI2020-K2F0-005-R0	CSK	KTH	KYD	First issue.	0
200715	TI2020-K2F0-005-R1	CSK	KTH	KYD	Revised.	1
						2
						3
						4
						5

Background

40% aqueous urea solution (hereinafter AUS40) is used as a reducing agent on NoNOx SCR systems for marine engines. The urea concentration of AUS40 is allowed from min. 39% to max. 41% as specified on the ISO18611-1. If the urea concentration is out of the required range, it may cause the SCR performance problems like a degradation of de-NOx efficiency or a malfunction of urea dosing system.

Therefore, the concentration quality of AUS40 should be cared and checked by shipyards or ship operators with reference to the following precautions before the SCR operation.

Precautions for AUS40 quality control

1. Check if the urea concentration meet the specification on a certificate of analysis submitted by the AUS40 supplier. If the urea concentration is either less than 39% or more than 41%, the urea should not be used.
2. Any remained water, contaminates or residues should be removed and cleaned before filling a urea storage tank with AUS40.
3. Flushing shipyard urea pipes should be done and remained water must be removed in the pipes, if water is used for the flushing before an initial SCR operation.
4. AUS40 should not be mixed with any other substance in shipyard pipe system.
5. Refer to ISO18611-3 about handling, transportation and storage of AUS40.
6. It is recommended to measure the urea concentration before operating SCR system, if applicable.

ENGINE & MACHINERY (HHI-EMD)
Tel: +82-52-202-9069, Fax: +82-52-202-6945, E-mail: K2F0A@hhi.co.kr

Specification of AUS40 quality

HYUNDAI HEAVY INDUSTRIES CO., LTD.

Info No. 065000	SPECIFICATION OF UREA 40% SOLUTION	Ident. No. F34-000131-3
Scale: Non / Size: A4	Type	Page No. 1 (1)

Similar Ident. No.:	Replacement for Ident.No.:	Licensor Ident. No.:

Date	Des.	Chk.	Appd.	A.C.	Change / Replacement	C.No.
				*		5
				*		4
				*		3
20200623	KMJ	OSH	PJK	*	ISO18611	2
20170904	KYW	PNG	KMH	*	Biuret spec. revised.	1
20121107	KYW	YJD	HJS	*	First issue.	0

Suppl.Ident.No.: | Confidential Code: B

The characteristics of the UREA 40% solution used for SCR system must be within the following limits.

Characteristics	Unit	Limits	
		Min.	Max.
Urea content	% (m/m)	39	41
Density at 20 °C	kg/m^3	1105	1177
Refractive index at 20 °C	-	1.3947	1.3982
Alkalinity as NH_3	% (m/m)	-	0.5
Biuret	% (m/m)	-	0.8
Aldehydes	mg/kg	-	100
Insoluble matter	mg/kg	-	50
Phosphate (PO_4)	mg/kg	-	1
Calcium	mg/kg	-	1
Iron	mg/kg	-	1
Magnesium	mg/kg	-	1
Sodium	mg/kg	-	1
Potassium	mg/kg	-	1

[The end]

Yours sincerely,

Y.D. KIM / General Manager of
Marine Machinery Design & Engineering Department