

National Refrigerants, Inc.

Analytical Laboratory

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Problems Found Action Required

Normal Results No Action Needed

SL: 03

Refrigerant Analysis Report

Customer:	Johnson Controls	P.O. No.:	NRIHP
Address:	812 First St Blvd. Wilmington, DE 19804	Refrigerant Type:	R-134a
Contact:	Kevin Fraze	Job Location:	DuPont Experimental Station
Telephone:	302-353-0315	System S/N:	MRP 626 904
Fax:	kevin.m.fraze@jci.com	Sample ID#:	Chiller 7
		Lab. Reference:	181228-07
		Date Rec.:	12/28/18

Analysis

Sample Results

In-Service Limits

Identification	By Gas Chromatography	R-134a	
Moisture	parts per million by weight	132	120 <u>Max.</u>
High Boiling Residue	per cent by volume	0.3	2 <u>Max.</u>
Acidity	parts per million (as HCl)	<0.20	1 <u>Max.</u>
Non-Condensable Gas	per cent by volume	-	1.5 <u>Max.</u>
Chloride	pass/fail	Pass	<u>pass</u>
Purity	% by weight (Gas Chromatography)	99.97	99.5 <u>Min.</u>
Particulates	pass/fail	Pass	<u>pass</u>
Other	Total Hrs Run: 93,761		

(1) 20 ppm for R-11, 113, 123.

Comments: Moisture above the normal range (120 ppm maximum). The high boiling residue (0.30%) is a hazy light amber oil. All other above test results are normal. The only significant organic impurity present individually is R-143a: 0.01%. Recommend you change the filter driers. Resample at next scheduled maintenance interval.

Laboratory Supervisor: Dan Wright, Manager

Digitally signed by Dan Wright, Manager
DN: cn=Dan Wright, Manager, o=National Refrigerants Inc., ou=Analytical Lab, email=dan.wright@refrigerants.com, c=US
Date: 2019.01.03 07:45:42 -0500'

Date: 1/2/2019

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