

Silver, Joshua

From: John Poole <rs@refsols.com>
Sent: Thursday, August 1, 2024 11:09 AM
To: Birgfeld, Erin; Sheppard, Margaret; Silver, Joshua
Cc: Russ LaMotte; Steven P. Mella; Nick Poole
Subject: SNAP APPLCIATIONS FOR RS-20 (R480A) & RS-70 (R453A)

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Hello Erin, Margaret & Josh,

It was good to talk & meet with you all recently in our Teams discussion, which I found interesting & useful, & thanks to everyone for the time spent.

I undertook to confirm our position following this discussion, which will be divided between the 2 SNAP applications that are currently outstanding, namely RS-20 (R480A) & RS-70 (R453A) as follows:

RS-20 (R480A)

RS-20 (R480A) has been designed & formulated as a non-flammable low GWP replacement for R134a in the **aftermarket**, that is to say for retrofitting **existing equipment** thereby enabling users to migrate easily & at low cost away from high GWP R134a (GWP1430) to low GWP RS-20 (R480A) (GWP291). It was mentioned that R1234yf & R152a are available at lower GWPs, which is true, but both these refrigerants are **flammable** with safety classifications of A2L & A2 respectively, & consequently cannot be used to replace R134a in existing equipment/installations.

As stated during our meeting, I confirm that to simplify & clarify matters we would like to change the classification of our SNAP application for RS-20 (R480A) to **retrofit only & remove any reference to use in new equipment.**

A further point that was raised concerns fittings for motor vehicles air-conditioning systems. I confirm that the fittings for RS-20 (R480A) will be unique for all 4 settings, namely high side &, low side service ports, small cans & larger 30 lb cylinders.

You expressed some concern around the recycling of RS-20 (R480), & the possibility of mixtures with R134a occurring in garages. If by chance & in error, R134a & RS-20 (R480A) were to be mixed together then we do not anticipate there would be any practical problems because no higher pressure azeotropes would be formed. This is quite unlike CFC12 being mixed with R134a (when CFCs were being phased out), where such a mixture has a lower boiling point than CFC12 & hence results in a higher pressure in the a/c system which can cause problems. **This will not happen with mixtures of R134a & RS-20 (R480A).**

With regard to reclamation of RS-20 (R480A), recovered material can be sent to registered reclaimers & separators which can easily re-constitute & purify this composition to AHRI 700 standard.

With regard to automotive garage recycling recovery machines, RS-20 (R480A) can be recovered with existing machines utilizing a separate recovery cylinder for RS-20 (R480A), as they are required to use separate recovery cylinders for 1234yf and 134a.

RS-70 (trade name RS-44b in the USA) (R453A) MVAC FOR TRAINS & BUSES

As in the case of the RS-20 (R480A) application, EPA is conflating blends for new equipment (which are largely A2L safety classification) with ***retrofit in existing equipment which must be non-flammable***. EPA said during this discussion RS-70 has one of the highest GWPs for replacing R22. But this is not the case because RS-70 (R453A) has the ***lowest GWP of non-flammable retrofit replacements for R22***, when alternatives for R22 in new equipment which are all flammable are omitted. Once again, this is confusing safety classification of non-flammability with flammable refrigerants. We cannot emphasise strongly enough that **RS-70 (R480A) is non-flammable with A1 safety classification**, which is non-flammable under all conditions of fractionation & which is included in our SNAP application.

EPA raised the issue of HCFC22 being available with stocks in the market. HCFC22 depletes the ozone layer whereas RS-70 (R453A) has zero Ozone Depletion Potential & so is environmentally safer & superior.

We have advised EPA that the Southeastern Pennsylvania Transitory Authority (SEPTA) has tested RS-70 (R453A) in their rail cars to replace R22 & found it to work satisfactorily. SEPTA says that they have tested out other potential R22 replacements but these have been found not to be acceptable, & consequently they wish to be able to access supplies of RS-70 (R453A) as a matter of some urgency. SEPTA's rail cars were built in the 1970s & say that R453A is the only refrigerant which works satisfactorily in these machines. R407C is not acceptable due to high pressure & cost of retrofit

I hope I have covered all the points raised during our meeting & to your satisfaction. Please let me know if I have omitted anything relevant to these two applications and/or you need more information.

Regards

John Poole
Refrigerant Solutions Ltd
8 Murieston road
Hale
Altrincham
Cheshire WA15 9ST
Tel: 44 161 926 9876
Mob: 07785 242552