

# TECHNICAL SERVICE BULLETIN

1/24/03

*“Keeping technicians informed with the latest update!”*

## SUBJECT: Refrigerants Containing UV Dye

*There appears to be a trend for refrigerant manufacturers to premix UV Dye in 30 lb cylinders of refrigerant. While this practice has been used in 1 lb. cans of refrigerants for a number of years with some approval in the marketplace, there has been no feedback with respect to using 30lb refrigerant cylinders premixed with UV dye. Most shops use recover/recycle/recharge equipment to charge A/C systems. These units need to be preloaded with refrigerant; our concern was that the dye would be separated from the refrigerant during this process.*

UView Ultraviolet Systems took it upon itself to research the effectiveness of using refrigerant mixed with UV dye when used with recovery/recycle/recharge equipment. We commissioned a third party laboratory to conduct the tests with a leading manufacturers recover/recycle/recharge unit. The refrigerant was withdrawn from the 30 lb cylinder in a liquid phase according to the manufacturer's recommended operating procedure to load the on board storage tank with refrigerant. Samples were taken from the R/R/R machines on board storage tank and the oil separator. These samples were compared with a sample from the refrigerant manufacturer's 30 lb cylinder mixed with UV dye.

The results showed that 95% of the dye was removed by the oil separator on R/R/R machine. Therefore if a technician were to recharge an a/c with the R/R/R machine there would not be enough dye in the refrigerant to detect any leaks and additional dye would have to be added to the a/c system.

***In conclusion, using a R/R/R machine refilled with refrigerant premixed with UV dye will provide no UV leak detection.***

***If you require additional information please contact  
Customer Service: 1-877-776-8486***

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Report Number: 3036422  
 Refrigerant: Genetron R-134aUV  
 Recovery Device: Robinair Cooltech 700  
 Model/Serial #: 347002K/13120

1. Scope of Tests.

Testing was conducted by Intertek Testing Services on a 30 lb. cylinder of Genetron R-134aUV refrigerant which contained an ultraviolet dye that is used to detect leaks in automotive air conditioning systems. The refrigerant was procured by Intertek Testing Services. A weighed sample of the virgin refrigerant was allowed to evaporate in a Goetz bulb where the dye residue was collected. The remaining virgin R-134aUV was processed through a Robinair mobile air conditioning recovery/recycle device. A weighed sample of the recovered refrigerant was evaporated in a Goetz bulb, and the dye residue collected. A third Goetz bulb was used to collect the dye residue expelled by the recovery machine's oil separator. The dye residue from the three samples was compared qualitatively in side by side photographs illuminated by natural light and ultraviolet light. The samples were compared quantitatively by determining the mass percent of dye in the virgin refrigerant and the recovered refrigerant. The Robinair recovery/recycle unit was operated in accordance with the operating instructions furnished by the manufacturer.

2. Performance Results.

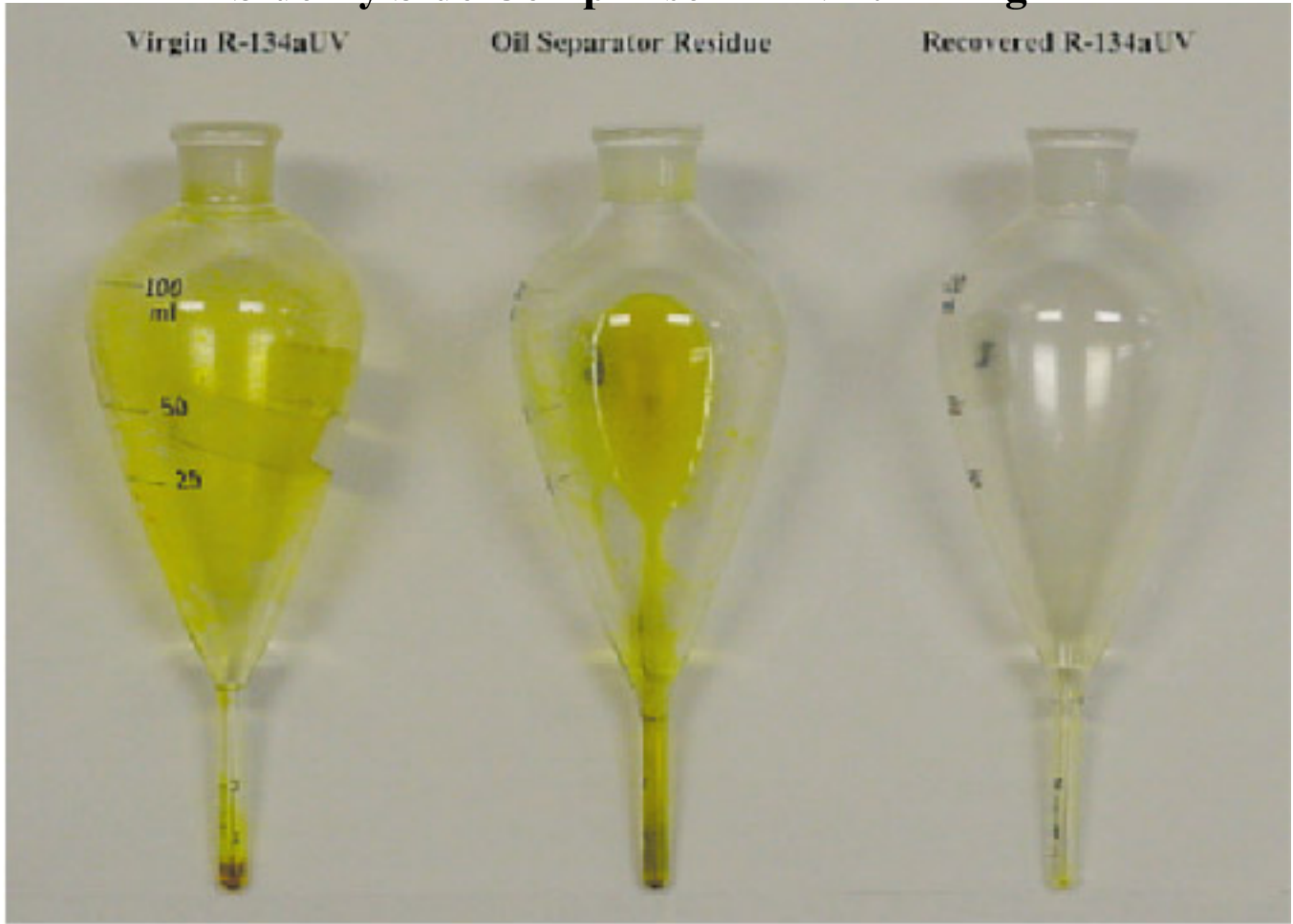
	Virgin R-134aUV	Oil Separator Residue	Recovered R-134aUV
Goetz Bulb #	71	6	2
Bulb Initial Weight (grams)	56.5633	52.5797	51.3564
Bulb Final Weight (grams)	56.6373	54.5343	51.3602
Dye Residue Weight (grams)	<b>0.0740</b>	<b>1.9546</b>	<b>0.0038</b>
Refrigerant Sample Weight (grams)	149.9	N/A	149.0
Mass percent of Dye in Refrigerant (%)	<b>0.04936</b>	N/A	<b>0.00255</b>

Notice: These results only apply to the item described in this report, which shall not be reproduced, except in full, without obtaining prior written approval from Intertek Testing Services. No portion of this testing has been subcontracted to other laboratories. All quantified data is traceable to national standards of measurements. The Document Streamline Registered: 062200: e:\data1\groups\engineering\nonstandardtests\UView\3036422

Approved By:

Michael E. Shows, Engineering Manager

## Side By Side Comparison In Natural Light



## Side By Side Comparison In Ultraviolet Light

