Santech®

Automotive Parts Rebuilders Association

2001 Air Conditioning Clinic

December 8, 2001

Materials used in Current Production of O.E. Compressors

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Company	Mat'l	Color	Application Notes
Alma	Neopr	Black	A6
Climate Control CCI	Neopr	Black	All internal compressor parts are neoprene.
Diesel Kiki	HNBR	Black	High temperature applications (switching on R134a)
Seltec			
Zexel	EPDM	Black	High temperature applications R134a (running change started in September 2001)
	Nitrile	Black	Low and moderate temperature applications
Ford	Nitrile	Black	FS10 Shell
Delphi	HNBR	Black	V5,H6 & R4 (for aftermarket service R12 or R134a) changed from Neoprene in 1999. V7 & CVC are all HNBR.
General Motors			
	EPDM	Black	H6 & R4 (for OE R134a systems) changed from Neoprene in 1999
	Neopr	Black	Manifold o-rings and sealing washers.
Nippondenso	HNBR	Black	HNBR (RBR) for R134a applications
	HNBR	Purple	Manifold seal for 10S series
	Nitrile	Red	Nitrile for R12 applications
Sanden	HNBR	Black	HNBR for all R134a applications.
	HNBR	Green	Predominately black if not all black. There may be some leftover green.
	Nitrile	Black	Nitrile for R12 applications.

Why the Change to EPDM by Delphi/GM & Diesel Kiki/Zexel?

- Temperature performance is higher than Neoprene or Nitrile
- Cost is is lower than HNBR

Why Change now versus with R134a Implementation?

- Chemical Compatibility with Mineral Oil
- Potential use in Mineral Oil by Mechanics

Chemical Compatibility
EPDM with PAG, Mineral Oil and Ester

Diesel Kiki/Zexel EPDM Material
ASTM D471 (to ASTM D1414 on o-rings)
Volume Change (22 hours at 120C)

Lubricant	Black EPDM
MO Ford YN9	+93.2
PAG Union Carbide RL488	-2.2
POE Castrol Retro100	+16
POE Texaco Capella	+15.7

Delphi/General Motors EPDM Material
ASTM D471 (to ASTM D1414 on o-rings)
Volume Change (22 hours at 120C)

Lubricant	Black EPDM	Black Neoprene
MO Ford YN9	+97.8	+4.7
PAG Union Carbide RL488	-1.1	-3.8
POE Castrol Retro100	+17.8	+14.3
POE Texaco Capella	+15.5	+12.4