

FACT SHEET

SUBJECT: Counterfeit Refrigerant (R-134a)

BACKGROUND:

- . DLA HQ received e-mail from NAVSEA about reported issues (explosions & personnel deaths) caused by counterfeit refrigerant, (R-134a).

DISCUSSION:

- . The reported incidents of explosions (causing severe injuries & 3 deaths) occurred on refrigerated shipping containers (owned by Maersk Line) in Vietnam and Brazil, which caused a temporary embargo of all refrigerated shipping containers into USA. (DHS)

- o Suspected cause of explosions was counterfeit refrigerant.
- o Counterfeiters are mixing R-134a and R-40 refrigerant (plus other substances such as methane), and selling it as pure R-134a. R-40 will corrode & "dissolve" aluminum resulting in a highly unstable, explosive substance, if exposed to air.
- o R-40 is no longer used as a refrigerant due to its flammability, corrosiveness, environmental & toxicity issues. Counterfeiters are using it because its physical properties closely mimic properties of R-134a.
- o Limited / no publicity about potential of counterfeit refrigerants within DoD or USA.

- . Investigation sources:

- o Maersk provided websites, test reports and pictures. (The CONTAINER OWNERS ASSOCIATION's home page is <http://www.containerownersassociation.org/>)
- o Web research on term "counterfeit refrigerants".
- o The Society of Automotive Engineers (SAE International) Refrigerant Committee Chairman discussed counterfeit refrigerant findings in USA and the Middle East. Released some information for DLA use.

- . Investigation findings:

- o In USA, SAE reported several incidents of one or two canisters of pure R-40 or R-134a mixed with R-40 have been found mingled in pallets of canisters containing pure R-134a. (In other words, sampling inspection would probably not identify this unless the exact canister containing counterfeit refrigerant was tested.)
- o SAE has been approached by a helicopter manufacturer with concerns about counterfeit refrigerant use in helicopters being flown & serviced in Afghanistan. The air conditioner units on helicopters are light-weight aluminum. In addition to the potential explosive situation, there exists the possibility of the R-40 causing leaks in the system which could allow the toxic R-40 to infiltrate into the crew areas.
- o SAE also reported an episode of German Army Trucks contaminated with counterfeit R-134a during servicing in Afghanistan.
- o US EPA was advised of infiltration of R-40 into USA by SAE. US EPA taking no action.

- o Main source of counterfeit refrigerant reported to be Southeast Asia.
- o Main destination of counterfeit refrigerant currently is Middle East, but is found world-wide (e.g. Greece, Columbia, Vietnam, Brazil, Philippines & USA).
- o Honeywell recently reported identifying and seizing 6,000 canisters (30 lbs. each) with counterfeit Honeywell company labels containing counterfeit R-134a in the United Arab Emirates. In the same press release, they announced that they had seized more than 200,000 counterfeit products since 2009.
- o Currently, there is no safe way to identify a system (with any aluminum components) that has been contaminated with counterfeit R-134a containing R-40. According to the SAE, just the act of removing small amounts of refrigerant (to test it for R-40) may be enough to set off an explosion.
- o Currently, according to the SAE, it is not safely possible to clean / decontaminate / remediate a refrigerator or air conditioner unit containing aluminum parts that has been contaminated with R-40. Complete (careful) replacement of entire unit is their only suggestion. Disposal of the contaminated unit will be difficult.

RECOMMENDATION: DLA HQ will reach out to refrigerant manufacturers to obtain information to draft & submit an Agency Action Notice (Unlimited) to the Government-Industry Data Exchange Program (GIDEP). DLA Aviation will provide information to DLA HQ on current methods and further plans to prevent counterfeit refrigerant from infiltrating the supply system.

P.M. George/J3341/COMM 703-767-3390/02-28-12