WHAT CHEMICALS ARE IN THE SPRAYS?
Prepared by the Association of Flight Attendants, AFL-CIO
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Most of the 60 countries that require pesticide spraying in the aircraft cabin either prior to or upon arrival dictate that the active ingredient must be a particular pyrethroid pesticide, typically either permethrin or phenothrin, and typically 2% by weight. Sometimes, piperonyl butoxide is added to these sprays to make the pyrethroid more potent. In addition, the solvents listed below have been identified in each of the sprays used by United Airlines, either for residual treatment of the cabin in Hong Kong in preparation for flying to Australia, or for in-flight treatment enroute to Jamaica, China, and Uruguay. Effective May 2004, Hawaiian Airlines uses the cabin spray manufactured by Callington Haven (last on the list) upon arrival in Australia. Aloha Airlines residually treats its aircraft in Rarotonga. We do not have specific product information for American Trans Air or others, but they likely use similar products. US Airways, Piedmont Airlines, Spirit Airlines (and likely other airlines) all spray pesticides on aircraft routed domestically, even though the EPA does not approve these pesticide products for application on aircraft. Product information is available from AFA upon request. Contact Judith Anderson at judith@AFAnet.org or 206-932-6237.

"NO ODOR" RESIDUAL SPRAY, "PESTGARD"

- **chemicals identified in the AIR above the liquid**
  - 2-hexene
  - 2-cyclohexen-1, 3-methylbenzene
  - 5-methyl, 1-hexene
  - 1,1’-oxybisoctane
  - 1-decanol
  - 1-fluorododecane
  - undecanal
  - 5-methyleneundecane
  - ethenyoxy-isoctane
  - N-(1-phenylethylidene)methanamine
  - 1-octanol
  - (1,1-dimethyl)cyclohexane
  - 1,2-diethylcyclobutane

- **chemicals identified in the actual liquid**
  - permethrin
  - toluene
  - 9-methyl-5-undecene
  - dodecamethylcyclohexasiloxane
  - pyrimidine siloxane derivative
  - benzoic acid siloxane derivative
  - trisiloxane derivative
  - palmidrol
  - 1-fluorododecane

"REGULAR ODOR RESIDUAL SPRAY, "PESTGARD"

- **chemicals identified in the AIR above the liquid**
  - acetamidoacetaldehyde
  - methoxy cyclobutane
  - iodomethylbenzene
  - o-xylene
  - palmidrol
  - 2-phenylethylester benzoic acid
  - benzoic acid derivative
  - 1-isocyano-4-methyl-benzene
  - 1-methylpropylbenzene
  - 1-ethyl-2,3-dimethylbenzene
  - 4-ethyl-1,2-dimethylbenzene
  - 1-ethyl-2,4-dimethylbenzene
  - 1-methyl-4-propanoylbenzene
  - naphthalene

- **chemicals identified in the liquid itself**
  - permethrin
  - p-xylene
  - cycloheptatrienylium bromide
  - 1,1’,-(1-methyl-1,2-ethanediyl)benzene
  - 1-nitroethybenzene
  - 1,1-dimethylpropylbenzene
  - trisiloxane derivative
  - tetrasiloxane derivative
  - o-xylene
  - palmidrol
  - 1,4-diethylbenzene
  - 1-nitroethylbenzene
  - 1,3-diethyl-5-methylbenzene
  - 1-ethyl-2,4-dimethylbenzene
  - 1-ethyl-2,3-dimethylbenzene
  - 1,3-diethyl-5-methylbenzene
  - 1-methyl-2-(2-propenyl)-benzene
  - naphthalene
  - cyclopropanecarboxylic acid derivative
"LOW ODOR" RESIDUAL SPRAY, "AIREZE"

- chemicals identified in the AIR above the liquid
  - methylene chloride
  - 3-ethyl-2,2-dimethyl-pentane
  - 1-hexene
  - 5-methyl-1-hexene
  - 1-octanol
  - 3,7-dimethyl-1-octene
  - 1,2,2-diethylcyclobutane
  - propylcyclopropane
  - 5-methylene-undecane
- chemical identified in the actual liquid
  - permethrin
  - 1,3-dimethoxypropane
  - cycloheptatrienyl bromide
  - 1,2-dimethylbenzene
  - p-xylene
  - 1-ethyl-2-methylbenzene
  - 1,2,3-trimethylbenzene
  - 1,1'-oxybiscyclooctane
  - siloxane derivative
  - benzyl benzoate
  - 2-nitro-2-methylcyclohexanone
  - 2-(1-methylpropyl)-cyclopentanone
  - palmidrol
  - 9-methyl-(Z)-5-undecene
  - 2,2-dimethylcyclohexanol
  - trisiloxane derivative
  - diethylphthalate

IN-FLIGHT SPRAY, "AIROSOL"

- chemicals identified in the AIR above the liquid
  - acetic acid anhydride
  - fluorotrimethylsilane
  - hexamethylcyclotrisiloxane
  - 1,2-dimethylbenzene
  - 1-decanol
  - 6-methyl-1-heptanol
  - 2,4-dimethyl-1-heptene
  - 1,1'-bicycloheptyl
  - 1-decanol
  - cyclohexane ethanol
  - 2,4-dimethyl-1-heptene
  - 1-nonyne
  - isoctanol
  - ethylidenecyclohexane
  - (E)-2-nonenal
  - 2-propyl-2-pentanol
  - (E)-2-decenal
  - octamethyl-cyclotetrasiloxane
- chemicals identified in the liquid itself
  - phenothrin
  - 2-bromoethylbenzene
  - ethylchrysanthemate

REGULAR ODOR RESIDUAL SPRAY, "AIREZE"

- chemicals identified in the AIR above the liquid
  - 4,5-dimethyl-1-hexene
  - 3-ethyl-2,2-dimethyl-pentane
  - 5-methyl-1-hexene
  - 3,7-dimethyl-1-octene
  - 1-hexene
  - 5-methyl-1-hexene
  - 1-octanol
  - 2-propyl-1-pentanol
- chemicals identified in the liquid itself
  - permethrin
  - 1,3-dimethylpropane
  - cycloheptatrienyl bromide
  - 1,2-dimethylbenzene
  - diethylphthalate
  - benzyl benzoate
  - palmidrol
  - 1,1-dimethylethylcyclohexane
  - 9-methyl-(Z)-5-undecene
  - 3-hexyl-1,1,2-trimethyl-cis-cyclobutane
  - 2-pentyl-1-heptene
  - 1-methoxynaphthalene

CALLINGTON AIRCRAFT CABIN SPRAY

- chemicals identified in the AIR above the liquid
  - benzoic acid siloxane derivative
  - silane derivative
  - cyclotetrasiloxane derivative
  - tetramethysilane
- chemicals identified in the liquid itself
  - phenothrin
  - 2-bromoethylbenzene
  - 1,2-dimethylbenzene
  - 1-methoxy-3-methyl-benzene