

The not-so-secret ingredient: Stadis 450 (dinonylnaphthalene sulfonic acid, barium salt)

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The most commonly used commercial turbine jet fuels today are named JET-A, JET-A1, and JET-B. All of these are kerosene type fuels except JET-B which is a kerosene-naphtha blend for colder climates [1, 2]. JET-A is used internationally and JET-A1 is available only in the US. The US military primarily uses its own kerosene jet fuel, JP-8, which is similar to JET-A1 [11, 2].

A number of chemical additives are used in these fuels including corrosion inhibitors, temperature stabilizers, detergents, and static electricity dissipators. Static dissipators are of particular importance to atmospheric aerosol and environmental research, due to their metal content and their widespread use in commercial and military jet fuel [17, 8]. Octel Starreon Stadis® 450 is a static dissipator, comprised of dinonylnaphthalene sulfonic acid and other organic solvents, and according to the product MSDS (Material Safety Data Sheet), it contains two "trade secret" ingredients [18]. Stadis 450 is the only approved anti-static additive for use in Air Force aviation fuels, including JP-8, JP-5, JET-A1, and JET-B [9]. DuPont, the original manufacturer, reports having divested its production of Stadis 450 in September of 1994 to Octel Starreon LLC, now a subsidiary of Innospec Fuel Specialties. Innospec also manufactures another static dissipator additive called Statsafe®. However, according to Exxon Mobil, Stadis 450 continues to be the static dissipator of choice for commercial and military aviation [17].

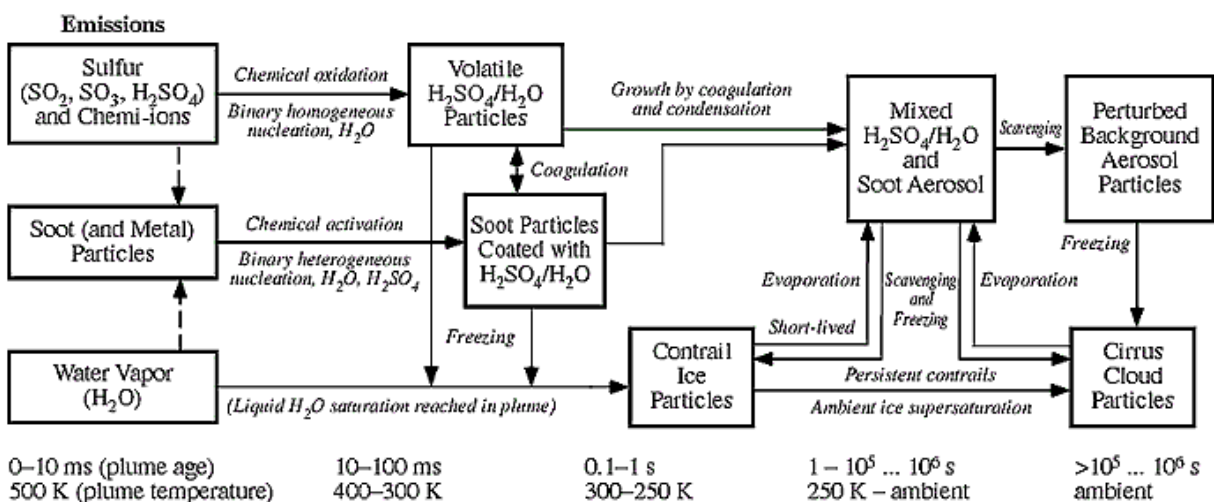
... static dissipator additive is widely used in jet kerosene Stadis® 450 is the only additive currently manufactured for use in aviation turbine fuels approved by the major turbine and airframe manufacturers.

Although the "trade secret" ingredients are well protected by the manufacturer, a recent study contracted by the EPA [10] and other sources strongly imply that these ingredients are salts of barium and/or calcium. The EPA classifies this dinonylnaphthalene sulfonic acid, barium salt as a "HPV" (High Production Volume) chemical, meaning it is "produced or imported into the United States in quantities of 1 million pounds or more per year [12]." This same study reports that "Based on the available toxicity results, dinonylnaphthalene sulfonic acid, barium salt appears to be the most biologically active member of the [dinonylnaphthalene] category [10]."

It is hypothesized that jet exhaust aerosol [4] is responsible for cloud seeding, rainbow diffraction, and dichroism observed in persistent contrails [5]. While "skeptics" may dismiss the very existence of persistent contrails, the phenomenon is widespread and commonly accepted among atmospheric scientists [7]. The exact cause of aerosol cloud seeding has been the subject of endless debate, but it has been shown conclusively that the earth's albedo, or its overall reflectivity, is increased by contrail aerosol (see chemtrails.cc satellite imagery category).

In the 3 days after the attacks on Sept. 11, 2001 during which the FAA grounded all commercial aircraft in the US, a unique opportunity to study atmospheric aerosol presented itself. David J. Travis, University of Wisconsin found significant changes in surface temperature and presented his findings to the American Meteorological Society [6].

There are a number of byproducts of combustion of kerosene jet fuel and its additives, including water, carbon dioxide, soot, sulfuric and nitrous acid, sulfur and nitrogen oxides, and metal ions [3], although this is by no means a complete list. Carbon monoxide and aromatic hydrocarbons also result from incomplete combustion.



Aerosol and contrail formation processes in an aircraft plume and wake as a function of plume age and temperature [4]. (image courtesy GRID-Arendal)

Not surprisingly, UNEP (United Nations Environment Programme) only makes casual mention of these metal particles, and fails to provide any information as to their role in atmospheric aerosol formation.

If one phenomenon gives away the presence of metals in the aerosol, it would be the large number of high altitude rainbows produced by contrail aerosol. Virtually unheard of prior to 1990, bright rainbows, sometimes referred to as "circumhorizon arcs" or more commonly, "chembows," can be observed regularly wherever jet aircraft fly.

According to a patent issued to Hughes Aircraft Company for dispersing metallic aerosol into the stratosphere, particles may stay suspended for up to a year. Hughes Aircraft, a major US defense contractor [14, 15], has been bought and sold by other defense contractors such as Boeing and Raytheon in recent years.

Excerpt from United States Patent 5003186:

The particles may be seeded by dispersal from seeding aircraft; one exemplary technique may be via the jet fuel as suggested by prior work regarding the metallic particles. Once the tiny particles have been dispersed into the atmosphere, the particles may remain in suspension for up to one year.

To avoid making qualitative judgments, I will not belabor the point that the horizon has been consistently gray, anywhere near commercial airports, since at least the early 1990s. But it would appear that the metal aerosol is indeed being dispersed, and staying suspended. While corporate media generally claims there can be no further debate about climate change, there are thousands of respected scientists who dispute the notion that atmospheric CO2 is the primary cause, and take exception to the idea that human intervention is required to "correct" it. At least 400 of them have testified to this effect to the US Senate [16].

Critical thinkers must question whether, with such flimsy scientific evidence, controlling the climate is the true motivation behind this metal aerosol dispersal. A 10 mile thick blanket of metal aerosol may have other uses to the militaries of the world, particularly in the fields of surveillance, aircraft and missile guidance, radar ducting, and radio frequency weapons systems.

Citations

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