DON'T CALL ME AN AEROSOL

Aerosols, as you know, are small cans of hair spray, lubricants, deodorants, spray paints, air fresheners, degreasers, starting fluid and shaving cream. What you might not know is how aerosols are classified under the Limited Quantity exceptions in 49 CFR Section 173.306 of the Hazardous Materials Regulations. Aerosols, under the Limited Quantity exception, except the shipper from affixing DOT Hazard Class Container Labels and using UN/DOT specification containers if not shipping by air or vessel. These Aerosols are also excepted from the non-bulk container marking requirements in Section 172.301 and the Hazardous Materials Shipping Papers in Section 172.200 unless it is an EPA Hazardous Waste, RQ Hazardous Substance or Marine Pollutant.

Aerosol is defined in Section 171.8 as "any non-refillable receptacle containing **a gas compressed, liquefied or dissolved under pressure**, the sole purpose of which is to **expel a non-poisonous liquid, paste or powder** and fitted with **a self-closing release device** allowing the contents to be ejected by the gas."

The definition makes clear that if the sole ingredient is the propellant, then that is not considered to be an Aerosol. For example, Propane is a Division 2.1 Flammable Gas, so a small can of compressed Propane Gas, just Propane Gas, would not be an Aerosol.

AEROSOLS

There are 5 proper shipping names for Aerosols in the 172.101 Hazardous Materials Table with Identification in Section 171.8 (see Aerosols); Classification of Gases in Section 173.115; and Limited Quantities for Compressed Gases Packaging Instructions, Authorizations, Container Pressure Limits and Inner Container Testing Requirements in Section 173.306.

UN1950, Aerosols, poison, *Packing Group III, (each not exceeding 1 L capacity)*, 2.2, (6.1)

UN1950, Aerosols, corrosive*, Packing Group II or III, (each not exceeding 1 L capacity),* 2.2, (8)

UN1950, Aerosols, flammable*, (each not exceeding 1 L capacity),* 2.1

UN1950, Aerosols, flammable, n.o.s., *(engine starting fluid) (each not exceeding 1 L capacity),* 2.1

UN1950, Aerosols, non-flammable, *(each not exceeding 1 L capacity),* 2.2

Poisonous Aerosols are Division 6.1 Poisons (take note they are classified as Division 6.1 Poison, not 2.3 Poison Gas) in Packing Group III, expelled by a Division 2.2 Non-Poisonous,

Non-Flammable Compressed Gas, which mixes when expelled, creating a poisonous vapor. A Corrosive Aerosol would be a Corrosive liquid, paste or powder in Packing Groups II or III that is compressed, liquefied or dissolved under pressure, and which is expelled by a Division 2.2 Non-Poisonous, Non-Flammable Gas.

STARTING FLUID

Starting fluid could be good example of an aerosol if the starting fluid were a small can partially filled with a Class 3 Flammable Liquid, like Heptane or Diethyl Ether, to be used as the fuel to start the engine, and a little Petroleum Oil to protect the cylinders from damage, which is expelled by a Division 2.2 Non-Poisonous, Non-Flammable Compressed Gas, like Carbon Dioxide. However, if the starting fluid were just Propane or Butane which are both Flammable Gases, it could be starting fluid, it just wouldn't be a aerosol.

RECEPTACLE CONTAINING A GAS

If you plan to ship a small can of pressurized gas, be careful; that container could be a "Receptacle" if it is a **gas** and **does not have a release device**. Receptacles are small pressurized cans, **without release devices,** containing 2.1 Flammable Gas, 2.2 Non-Flammable Gas, or 2.2 Non-Flammable Gas that is also a 5.1 Oxidizer.

The proper shipping name, Receptacles, would be used when shipping small pressurized containers of gas or gas cartridges, under one liter each, **without release devices.** The Receptacle's packaging instructions also authorize Section 173.306 Limited Quantities For Compressed Gases, like the Aerosols. In addition, when using the shipping name Receptacles, the shipper is given further packaging authorizations (i.e.; cylinders) in Section 173.304, that are not afforded to the shipper when using the Aerosol proper shipping names, except for Aerosol, flammable, n.o.s., 2.1 for starting fluid.

There are 3 proper shipping names for Receptacles:

UN2037, Receptacles, small, containing gas *or* gas cartridges (*flammable) without release device, non refillable and not exceeding 1 liter capacity,* 2.1

UN2037, Receptacles, small, containing gas *or* gas cartridges *(non-flammable) without release device, non refillable and not exceeding 1 L capacity,* 2.2

UN2037, Receptacles, small, containing gas *or* gas cartridges *(oxidizing) without release device, non refillable and not exceeding 1 liter capacity*, 2.2, (5.1)

There are two major differences between an Aerosol and a Receptacle. First, **Aerosols** use

Division 2.1 Flammable **Gas** or Division 2.2 Non-Poisonous, Non-Flammable **Gas** to **expel** a **Liquid, Paste or Powder** that is a Class 3 Flammable **Liquid,** 6.1 Poison, or Class 8 Corrosive Liquid or Solid**. Receptacles** are Division 2.1 Flammable **Gases,** 2.2 Non-Poisonous, Non-Flammable **Gases,** or 2.2 Non-Flammable **Gases** that are also 5.1 Oxidizers. The second major difference would be **Aerosols have release devices** and **Receptacles do not.**

Even though there are only a few proper shipping names for pure gases and mixtures, if the name of a pure gas or a mixture of gases appears in Column 2 of the 172.101 Table, the proper shipping names column, the shipper would be required to use that name and to follow its Packaging Instructions in Column 8, which may or may not authorize the Limited Quantity exception in Section 173.306. For example, the proper shipping name, **Argon,** *compressed*, 2.2 Non-Poisonous, Non-Flammable Gas, authorizes the Section 173**.**306 Limited Quantity exception.

One important thing to remember is that Aerosol or Receptacle proper shipping names can never be used when shipping Division 2.3 Poison Gas. Division 2.3 Poison Gases are required to be shipped in DOT or UN Specification containers. Receptacles and Aerosols are always classed as either 2.2 Non-Flammable or 2.1 Flammable Gases.

Compressed Gas, N.O.S

What if a shipper had a small can of a 2.1 Flammable Gas or a small can of a Division 2.2 Non-Poisonous, Non-Flammable Gas in a pressurized container, that was **not an Aerosol** because it was a **pure gas,** and the container **had a release device,** so the container could **not be a Receptacle?** Don't worry, all is not lost. The shipper could still take the Limited Quantity Exceptions in Section 173.306, by using the proper shipping name **Compressed Gas, N.O.S.** Of the 21 different Compressed Gas, N.O.S. proper shipping names in the Table, there are 3 that may be used for small pressurized containers of Division 2.1 Flammable Gas and 2.2 Non-Poisonous, Non-Flammable Gas:

UN1956, Compressed gas, n.o.s., 2.2

UN1953, Compressed gas, flammable, n.o.s., 2.1

UN3156, Compressed gas, oxidizing, n.o.s., 2.2, (5.1)

The Compressed gas, flammable, n.o.s., 2.1, and Compressed gas, n.o.s., 2.2 Packaging Instructions in Column 8 of the 172.101 Table authorize the Limited Quantity exceptions in Section 173.306, in addition to the authorizations in Sections 173.302 and 173.305 for non-bulk DOT and UN containers. Compressed gas, oxidizing, n.o.s., 2.1, (5.1) authorizes the Section 173.306 Limited Quantity exceptions and Sections 173.302 for Non-bulk containers. All of these Compressed Gas, N.O.S. proper shipping names can also be used when shipping bulk

containers under Sections 173.314 and 173.315.

Be aware that some of the Compressed Gas, N.O.S. proper shipping names are Division 2.3 Poison Gases. Gases are not assigned Packing Groups like liquids and solids; however, Division 2.3 Poison Gases are assigned one of 4 Zones, A, B, C or D based on their degree of hazard.

Aerosols are shipped in Section 173.306 as **Limited Quantities** and Section 173.305 for Aerosols flammable, n.o.s. (starting fluid)**. Receptacles** can be shipped in Section 173.306 as **Limited Quantities** and 173.304 in non-bulk cylinders. **Compressed Gas, N.O.S.** can be shipped in Section 173.306 as **Limited Quantities** or in Sections 173.302 and 173.305 in non-bulk cylinders *(*except Compressed gas,oxidizing, n.o.s., 2.2, (5.1)*,* which only authorizes 173.302) and Sections 173.314 and 173.315 in bulk tank cars, multi-unit tank cars, cargo tanks and portable tanks.

CONSUMER COMMODITY, CLASS 9 AEROSOLS

There is one more way to ship Aerosols, or small cans of pressurized gases, by using one of the two proper shipping names for “Consumer Commodity” in the Hazardous Materials Table. Materials can be shipped to anyone as consumer commodities if they meet the definition in Section 171.8, even hazardous waste. The new ID8000, Consumer Commodity, Class 9 Packaging Authorizations in Column 8 of the 172.101 Table sends the shipper to Section 173.167 which allows 2.1 Flammable Gas and 2.2 Non-Flammable Gas Aerosols to be shipped as Consumer Commodities.

The Consumer Commodity Aerosol would be excepted from DOT/UN specification containers when shipped by air. Mark the container with the proper shipping name “Consumer Commodity,” the identification number ID8000, then apply the Class 9 label and the Air Limited Quantity Mark with the Letter “Y.”

Even though the Aerosol is marked and packaged for air, the ID8000, Consumer Commodity, Class 9 shipping description allows the “Air Packaged Consumer Commodity Aerosol” to be shipped as a ground Limited Quantity. Leave the Shipping Name, ID number and the Class 9 Label on the container, but use the air Limited Quantity Mark with the letter “Y” to ship by highway as a Limited Quantity, without a Hazardous Material Shipping Paper.

When shipping Aerosols as ID8000, Consumer Commodity, Class 9, Section 173.167 requires the inner packaging to be constructed and tested in accordance with Section 173.306 - Limited Quantities for Compressed Gases in non-refillable non-metal containers not exceeding 120 mL or 4 fluid ounces each, or in non-refillable metal containers not exceeding 820 mL or 28 ounces each, except that 2.1 Flammable Gas Aerosols may not exceed 500 mL or 16.9 ounces each.

CONSUMER COMMODITY ORM-D

Finally, under Section 173.306(i), until December 31, 2020, any of the 173.306 Limited Quantity Gases or Aerosols can be reclassified to Consumer Commodity and be shipped by highway as Consumer Commodity, ORM-D under the old exception. Be aware, when shipping gases under the new ID 8000, Consumer Commodity, Class 9 it would only apply for Aerosols. However, the old Consumer Commodity, ORM-D Packaging Instructions in Section 173.156 authorized certain gases, not just Aerosols to be reclassified to Consumer Commodity, ORM-D if they met the definition of Consumer Commodity in 171.8.

Originally the Consumer Commodity, ORM-D and the ORM-D-AIR were to be replaced with Consumer Commodity, Class 9 on December 31, 2013 and December 31, 2012 respectively; however, the DOT decided that domestically, the old Consumer Commodity, ORM-D for highway would be extended until December 31, 2020.

Aerosols, Receptacles, Compressed Gas, N.O.S. or Consumer Commodity, which name is the the correct one for you? The DOT Hotline (1-800-467-4922) was a big help with this post. They are always very helpful. If you have any questions on shipping Class 2 Compressed Gases please give us a chance to help you out. Looking forward to seeing everyone at an upcoming seminar, but if you need help right away with a question or problem, Traci can always track me down. Keep your eyes peeled for more posts on the marking and packaging requirements for Limited Quantities of Compressed Gases in the months to come. Thank you for your support and readership.

Robert J. Keegan
Publisher and President
Hazardous Materials Publishing Company, Inc.
Transportation Skills Programs, Inc.