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Standard Terminology Relating To Aerosol Products[1]

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 The terms found in this terminology relate to the nomenclature used in the aerosol industry.

2. Terminology

active ingredient—component of an aerosol formulation that produces the specific effect for which the formulation is designed.

aerosol can side seam—cans which are formed from rectangular sheets have a soldered, bonded or welded strip which joins two corresponding or matching side gilt edges to form a cylinder.

aerosol packaging—pressurizing sealed containers with liquefied or compressed gases, enabling the product to self-dispense. The term "aerosol" as used here is not confined to the scientific definition (that is, a suspension of fine solid or liquid particles in air or gas).

aspirator valve—a valve in which the propellant vapor is aspirated through an orifice in the valve chamber, causing a suction effect that draws the product up the dip tube and into the valve.

auxiliary solvent—liquid material used in addition to the primary solvent. It is generally used to replace part of the primary solvent to produce a specific effect, or, as a matter of economics.

chemical attack—chemical reaction or solvent effect, causing failure or deterioration of plastic and rubber parts, organic coating, metals, or lithography involved in the completed package.

co-dispensing valve—an arrangement whereby two components of a product are separated inside the container and mixed at the time of use, when ejected through dual channels into the valve.

cold filling—the pressurizing of a container by cooling the propellant (and sometimes the product) below its boiling point and transferring it into the container before the valve is put in place. The operation is usually carried out at atmospheric pressure (that is, high pressure equipment is not needed).

compatibility—the ability of various components or an aerosol formulation to be used together without undesirable physical or chemical results.

concentrate—the product mix to which the propellant is added.

cosolvent—solvent used to improve the mutual solubility of other ingredients.

crimp—an operation that mechanically seals the valve to the container.

density—mass of a given volume of material at a specified temperature.

delivery rate—mass of mixture discharged from the dispenser per unit of time at a specified temperature, usually expressed in g/s at 80°F (26°C).

dip tube—tubing connecting the lower portion of the container or dispenser with the valve.

head space—volume in the upper portion of the dispenser not filled with liquid contents usually expressed as percent of total volume of dispenser at a specified temperature.

inert (inactive) ingredient—component of an aerosol formulation that does not contribute to the specific effect of the formulation. In some cases, it may be quite arbitrarily defined (for example with insecticides, only the propellants are considered as inert ingredients).

metering valve—a valve that delivers a definite limited amount of aerosol formulation each time the valve mechanism is operated.

nonvolatile ingredient—component of an aerosol formulation with a vapor pressure less than atmospheric pressure (14.7 psia (101 kPa)) at 105°F (40.6°C).

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official test aerosol, OTA—a standard insecticide dispenser and formulation prepared by the Chemical Specialties Manufacturers Association (CSMA) for use in aerosol test methods for flying insects.

overrun—the relation between the liquid volume of the cream mix, and that of the dispensed aerated product.

particle size—the diameter of solid or liquid particles, expressed in micrometres.

pressure—the internal force per unit area exerted by any material. Since the pressure is directly dependent on the temperature, the latter must be specified. The pressure may be reported in either of two ways:

(*1*) **absolute pressure**—the total pressure with zero as a reference point, usually expressed as pounds-force per square inch absolute (psia).

(*2*) **gage pressure**—the pressure in excess of atmospheric pressure. Under standard conditions at sea level, the numerical value of the absolute pressure is 14.7 higher than that of the gage pressure, which is usually expressed in pounds-force per square inch gage (psi).

pressure filling—pressurizing a container by injecting a propellant through the valve under high pressure. The operation is usually used where the propellant content is small, and it is carried out under ambient conditions (that is, refrigeration equipment is not needed).

product deterioration—chemical reaction or physical change within or between components considered compatible in the original formulation, that may be due to time or temperature of storage, or other factors.

product formulation—the specific formulation of the completed product, including propellant(s), usually expressed as mass per mass percent.

propellant—liquefied gas with a vapor pressure greater than atmospheric pressure (14.7 psia (101 kPa)) at 105°F (40.6°C).

sales code diameter—the overall diameter of a tin-plate fabricated aerosol can, taken from the double seam at the bottom of the container.

sales code height—the height of a tin-plate fabricated aerosol can, taken from between the double seams at the top and bottom of the cylinder.

solubility—the extent that one material will dissolve in another, generally expressed as mass percent, or as volume percent or parts per 100 parts of solvent by mass or volume. The temperature should be specified.

solvent—the liquid part of an aerosol formulation used to dissolve solid or other liquid parts.

spray—the dispersed discharge from an aerosol-type dispenser in the form of small droplets or particles. (This does not include foam-type dispensers.)

spray coating—an aerosol spray product for surface application, that leaves a residual clear or pigmented finish for protective or decorative purposes.

storage stability—the ability of a product to maintain its original characteristics over extended storage periods, under normal variations in temperature conditions.

synergist—an auxiliary material that has the property of increasing the effect of the active ingredient, even though it may have little specific activity itself.

NOTE 1—In the case of insecticides, synergists are considered as active ingredients.

three-phase system—a vapor phase and two liquid phases, one of which is usually the propellant inside the container.

two-phase system—a vapor phase and a single liquid phase, usually containing dissolved propellant, inside the container.

under-the-cap filling—a process for adding the propellant to the container by sealing off the head of the container and injecting the propellant at ambient temperature and high pressure, under the valve cap before crimping. This process is usually used where the propellant content is large and cold filling is not desired.

valve—a mechanism for discharging products from aerosol-type dispensers.

viscosity—the internal resistance to flow of a solid (powder), liquid, or gas at a specified temperature. Viscosity is a definite measurement for the consistency of a material.

volatile ingredients—the components of an aerosol formulation with a vapor pressure greater than atmospheric pressure (14.7 psia (101 kPa)) at 105°F (40.6°C).

3. Keywords

3.1 aerosol packaging terminology; aerosol products terminology; terminology of aerosol packaging