Aerosol Product Technology and Current Regulatory Definitions

D. Douglas Fratz
Aerosol Products Division Staff Executive

Consumer Specialty Products Association

Meeting on Bag-on-Valve Product Method of Sale
National Institute of Standards and Technology, Gaithersburg, MD
CSPA Aerosol Products Division

• CSPA Formed in 1914 – 100th Anniversary!
• APD One of Seven CSPA Divisions
• APD Formed in 1949
• > 150 APD Member Companies
  – Product Manufacturers
  – Packaging and Ingredient Suppliers
  – Consultants and Testing Laboratories
How Aerosol Products Began

• The Need – Insect Control for the Military in WW II
• The Solution – A Pressurized Spray Pesticide
• The Means – A Field Refillable, Low Cost Dispenser
• The Result – The First Industrial Aerosol Can (1946)
• Non-Refillable Commercial Aerosol Products in Late 1940s
Types of Pressurized Product Technology - 2014

• **Traditional Aerosol Products**
  – Pressurized for Continuous Delivery
  – Can Use Liquified or Compressed Gas Propellant
  – Delivers Liquid Spray, Liquid Stream, Foam, Dry, or Dry Powder
  – Propellant Expelled with Contents

• **Barrier-Pack Pressurized Products**
  – Bag-on-Valve, Piston Cans, etc.
  – Can Use Liquified or Compressed Gas Propellant
  – Delivers Liquid Spray, Liquid Stream, Semi-Solid, or Foaming Gel
  – Propellant NOT Expelled with Contents

• **Non-Propellant Spray Products**
  – Bladder-in-Can, Pump Pressurized Sprays, etc.
Pressurized Product Benefits

- Empty Containers Recyclable
- Efficiency in Delivery and Application
- Hermetically Sealed
- Long Shelf Life
- Effective and Consistent Performance
- Wide Variety of Delivery Options
Product Propellants

• Liquified Propellant Options
  – Hydrocarbon Blends
  – Dimethyl Ether
  – Hydrofluorocarbons/Hydrofluoroolefins

• Compressed Gas Propellant Options
  – Carbon Dioxide
  – Nitrogen, Air
  – Nitrous Oxide

• All Have Unique Capabilities and Limitations
With a liquefied gas, the pressure in a product formulation will remain constant as the product is used.
PRODUCT WITH A COMPRESSED OR SOLUBLE GAS

With a compressed or soluble gas, the pressure in the formulation will not remain constant as the product is used.
Boyle's Law

\[ PV = \text{Constant} \]
BOV Package
BOV Package Ready for Gassing & Filling
What Products Are BOV?

• BOV and Other Barrier Packages
  – Use the Same Types of Outer Containers
  – Use Similar Types of Valves
  – Similarly Allow for Continuous Delivery

• Increasingly Used for Liquid Sprays, Foaming Gels, Caulks, etc.
  – Skin Sprays, Air Fresheners, Pet Products, etc.
Current Regulatory Definitions of Aerosol and Similar Pressurized Products

• USA Federal Agencies: CPSC, DOT, EPA, FTC, FDA, NIST, OSHA
• NFPA and Related Fire Codes
• State Consumer Product VOC Regulations
• International Laws and Regulations
CSPA Member Position on Pressurized Product Method of Sale

• Net Weight is Acceptable for Traditional Aerosol Products
  – Net Volume Should Remain Allowable on Back Labels
• Policy Must be Consistent Across States
• Policy Should be Consistent Across Agencies
  – Same for Consumer and Institutional/Industrial
  – Same for Home, Auto, Pest and Personal Products
• CSPA Discussion on BOV Definitional Issues Continues
Thank You

Questions & Comments

Presented by:

D. Douglas Fratz
Aerosol Products Division Staff Executive
dfratz@cspa.org

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