Bag-on-Valve Technology

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• BOV Basics
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Bag on Valve is a “Bag in Can”

- The system consist of a **valve** (male or female specification) sealed with a **bag**. (Rolled)

- The bag consist of **multilayer films** which provide a barrier:
  - PET or nylon,
  - aluminium,
  - PP

- Valve and Bag are Heat Bonded plus 100% inspection against any bag defects.
Bag On Valve – Advantages

- **Total separation** of product from propellant thereby allowing **pure product filling and dispensing**.

- The film laminates of the bag and valve components coming in contact with the product are **compatible with water and solvent based formulations**.

- Compatibility and Stability **Testing required**
Bag on Valve – Advantages

- Product **evacuation ranges 95 – 99%**.

- The **airless bag precludes oxygen contact** with a product, allowing colors and fragrances to remain stable for longer period of time.
  - Products shelf life is extended. The percentage of fragrance essences to add, can be reduced.
Bag On Valve – Advantages

- BOV has a **quiet and non-chilling spray**;
  - provides continuous spraying under all angle positions.
  - High evacuation rates.

- BOV can be used with both: **liquid and viscous** products, water- or solvent based. The absence of propellant in product dispensed, minimized fire or explosion risks.
  - Ideal for areas where a product needs to be applied on heated objects or in warm or heated rooms.
Bag On Valve – Advantages

- The absence of propellant results also in larger droplet size of the sprays (20 – 130 micron) and eliminate the danger of any health damaging inhalation of particles.

- The system can be supplied with tinplate or aluminum valves to fit any standard size tinplate or aluminum aerosol can. Standard actuators can be applied.
Bag On Valve – Advantages

- BOV aids in the requirement to reduce VOC usage and content in aerosol packaging. Basically No VOC.

- BOV conforms to requirements for most food and pharmaceutical products. It is suitable for sterilization by irradiation.
How it works

- The pressurization agent – either **compressed air or nitrogen** – surrounds the product-filled pouch.

- When the actuator is depressed, the air or nitrogen **exerts pressure** on the pouch providing the force required to discharge the product.

- All the air remains in the container and is not released into the atmosphere.
Bag On Valve – Specification

- Designed Heat Seal welding method assures a gas / product tight seal.
- Valve (Male or Female) / Housing
- The bag has a shaped design, provides improved bottom, better stability in the can optimal volume ratio.
Bag On Valve – Specification

• In their various capacities they can serve product fills from **20 to 600 ml**, thereby using 60 to 70 % of the total can volume.

• **Pressure loss** is on par with conventional aerosols: 0.3 bar / year.
BOV – Filling Technology

• **Separate Filling Room is not Required**
  - Flammable propellants do not need to be used

• **Still requires a Hot Bath**
  - But…can get DOT exemption

• It is STILL an AEROSOL Package!
  - Some are calling it a “Non-Aerosol” and is being labeled as such.
Bag On Valve – Product Uses

**Personal care:**

- Post-foaming hair and shave gel, shampoo and conditioner.
- Liquid soap, hand and body creams and lotions. Sun creams and sprays, tanning creams, body oils, deo’s.
- Depilatory creams, facial scrub gels-lotions, facial mist.
- Toothpaste.

**Animal care / veterinary:**

- Medicines and animal care product.
- Insecticide, grooming sprays, shampoo etc.
Household products:
• Window cleaner, oven and ceramic plate cleaner.
• Shoe sprays.
• Insecticide sprays, citrus air fresheners.
• Plant sprays, furniture polish.

Industrial / automotive:
• Personal fire extinguishers, automotive air conditioners.
• Lubricants, oils, waxes, fats, cleaners, toners.
• Leak detectors, PU-foam, anti-spatter weld sprays, surface cooling sprays for welding.
Bag On Valve – product categories

**Food:**
- Whipped cream, vegetable pan sprays, mustard, chocolate paste, puddings, toppings, cheeses, concentrated food flavors etc.

**Pharma / medicine:**
- Nasal sprays, syrups, vitamin gel.
- Based on enzymes odor removers
- Wound gels and sprays.
- Dental products.
- Eye contact lens products, ultrasonic gel.
BOV Food Applications

Food

- BOV = Bag on Valve. 100% pure product being dispensed from Bag inside Can (Air or Gas compressed)
- Could be used with all the below actuators and all our std Lindal actuators (as previous slide)
- Possible sterilisation
- 360° use
Market trends

- **Replacing** typical pump and dispensing sprays (Saline water)
- Can replace many typical aerosol and or non-aerosol products
  - Less force needed

- **Advantage in food** products due to “pure” product dispensing and protection against oxygen (increasing shelf life)

- Global **volume increases** from year to year
- **Increased Contract Filler** availabilities and capabilities
- Slow but **growing consumer awareness**
BOV New Products & Developments

- Improved Bag-on valve
  - Click-in stem to switch from male to female
  - No blowby (within normal filling conditions)
  - Stronger valve housing (drop test)
  - Improved housing//bag seal with larger sealing area
- Bi-Power valve

- Two different mediums may be filled separated from each other into a three-chamber-system
- Mixing is effected while spraying or by the user after application
### Dosage Bag-on valve

- Possible dosages are from 100mcl to 5ml
- Guaranteed number of uses for the end consumer
- Same product quality from first dosage to the last
Next Generation BOV’s:

- Expect New Innovative ways to manufacture BOV
- Reduced welding – Time and Surface area
- Higher speed manufacturing vs 60/min+
- Laminate Developments for more compatibility
- Decreasing the amount of laminate layers

BOV: The better Aerosol...
Thank you for your attention!

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