



PACIFICBAG INC

November 2007

TECHNICAL BULLETIN

Performance of Pacific Bag One-Way Degassing Valves vs. Other Leading One-Way Degassing Valves

Overview

Fresh roasted coffees emit large amounts of CO₂ (carbon dioxide) for up to two weeks after roasting. If a coffee roaster wants to provide consumers with fresh coffee, then the roaster must package coffee immediately after roasting. The coffee package must **not allow air to enter the bag**, because coffee loses freshness when exposed to O₂ (Oxygen), and the package must also allow **CO₂ to escape out of the bag** as the coffee “de-gasses.”

The one-way degassing valve was invented to meet this need (i.e. **it allows release OUT, but not IN**). Provided the one-way valve functions properly, roasters can:

- a) Package coffee immediately after roasting,
- b) Allow “degassing” in the package,
- c) Minimize oxidative degradation of fresh roasted coffee, and
- d) Extend shelf stability.

IMPORTANT QUALITIES There are three (3) important qualities of a one-way degassing valve that must be understood:

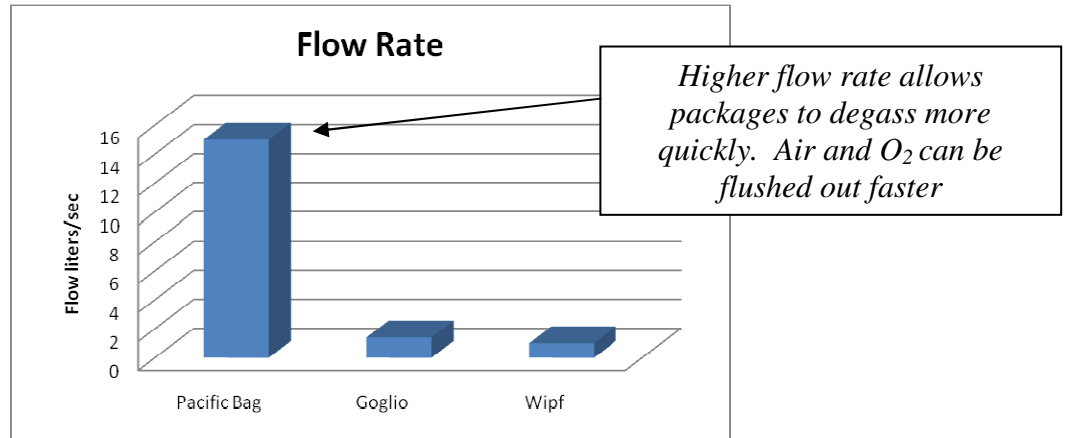
1. **Barrier to Oxygen** – This is the valve’s ability to prevent Oxygen from penetrating through it. The valve must prevent Oxygen penetration in order to protect oxygen sensitive products inside a package. *This quality is measured by the percent of Oxygen (%O₂) in a package after a time of storage.*
2. **Open and Close Pressure** – The valve must open at some low *Opening Pressure* or packages will become over-inflated (“puffy”) or burst. The valve must close at some lower *Closing Pressure* in order to prevent Oxygen penetration. The valve must open and close repeatedly over time.
3. **Flow Rate** – Gas must be able to flow through the valve at a rate that is sufficient to evacuate the package in the amount of time needed for production.

Valve Type	%O ₂	Open Pressure (milibar)	Close Pressure (milibar)	Flow Rate (liter/min.)
Pacific Bag	< 1%	2 - 7	0.5 - 4	15
Goglio / Fres-co	<1%	4 - 9	> 0.5	0.8 - 2
Wipf	<1%	4 - 9	1 - 6	1

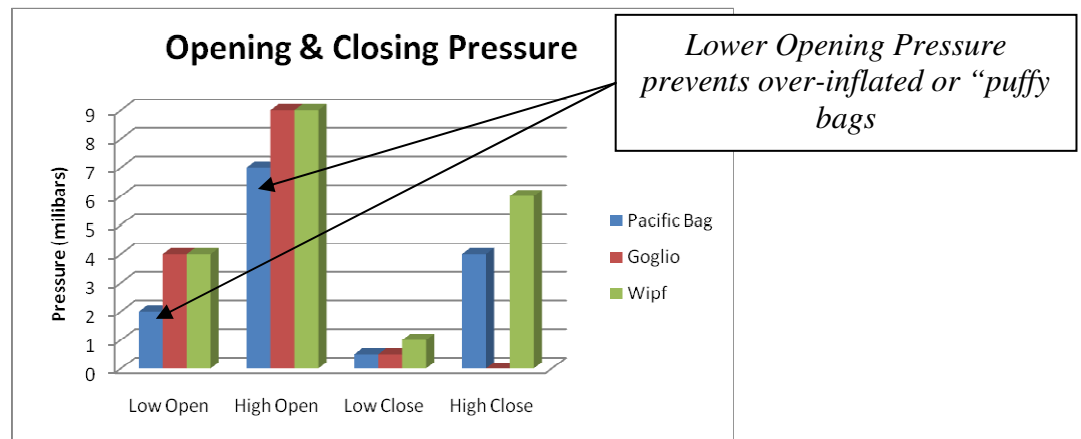


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Graph Showing PBI One Way Deagssing Valve has Higher Flow Rate vs. Goglio and Wipf



Graph Showing PBI One Way Degassing Valve has Lower Opening Pressure vs. Goglio and Wipf



CONCLUSION

The Pacific Bag one-way degassing has the same barrier to oxygen as Goglio and Wipf plus lower opening pressure for **less “puffy” bags** and **improved, higher flow rate.**