



Title/Titre : Franklin Associates Life Cycle Assessment for Wine Packaging

**Speakers/
Intervenants :** David Bellmore, Scholle Packaging

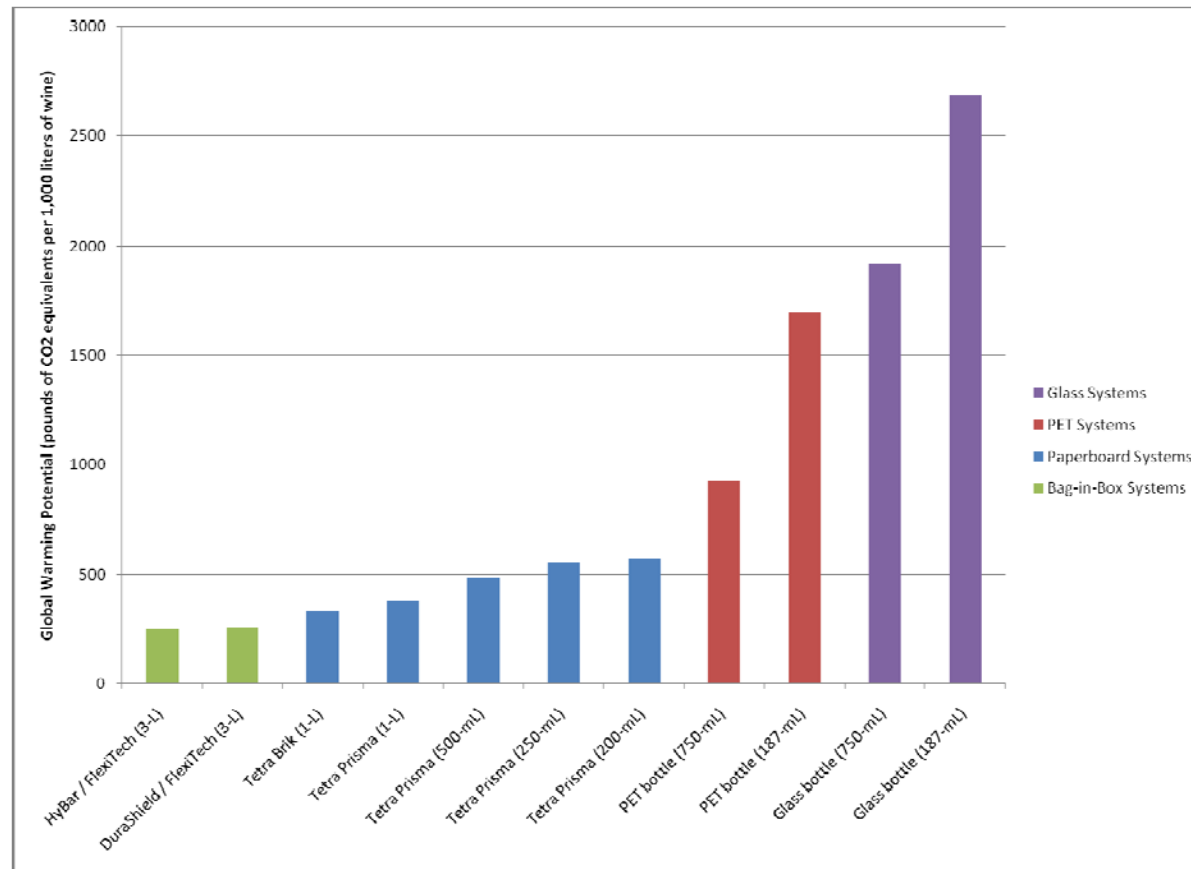


Wine Packaging Seminars:
Environmental Impact & O₂ Measurements

Bordeaux, France 29 November 2010



Key results from the 2006 and 2008 Franklin Associates' studies:



Sources:

Franklin Associates, October 2006, Tetra Pak study titled *Life Cycle Inventory of Container Systems for Wine*

Franklin Associates, November 2008, Scholle Packaging study titled *Life Cycle Inventory of Two Three-Liter Bag-In-Box Wine Packaging Systems*



More results from the 2006 and 2008 Franklin Associates' studies:

	Energy Requirements (million BTUs per 1,000 liters of wine)	Solid Waste (pounds per 1,000 liters of wine)	Global Warming Potential (pounds of CO₂ equivalents per 1,000 liters of wine)
Bag-in-Box Systems			
HyBar / FlexiTech (3-L)	3.38	143	248
DuraShield / FlexiTech (3-L)	3.43	143	256
Paperboard Systems			
Tetra Brik (1-L)	3.26	143	333
Tetra Prisma (1-L)	3.77	158	378
Tetra Prisma (500-mL)	4.84	196	484
Tetra Prisma (250-mL)	5.38	244	557
Tetra Prisma (200-mL)	5.29	244	571
PET Systems			
PET bottle (750-mL)	8.17	286	922
PET bottle (187-mL)	15.4	593	1,699
Glass Systems			
Glass bottle (750-mL)	10.8	1,545	1,916
Glass bottle (187-mL)	16.7	1,988	2,690

Sources:

Franklin Associates, October 2006, Tetra Pak study titled Life Cycle Inventory of Container Systems for Wine

Franklin Associates, November 2008, Scholle Packaging study titled Life Cycle Inventory of Two Three-Liter Bag-In-Box Wine Packaging Systems



Total weight from the 2006 and 2008 Franklin Associates' studies:

	Primary Packaging Weight (grams)	Secondary and Tertiary Packaging Weight (grams)	Total Weight per Container (grams)	Total Weight per Liter (grams / liter)
Bag-in-Box Systems				
HyBar / FlexiTech (3-L)	191.9	45.0	236.9	79.0
DuraShield / FlexiTech (3-L)	191.9	45.0	236.9	79.0
Paperboard Systems				
Tetra Brik (1-L)	33.58	23.2	56.7	56.7
Tetra Prisma (1-L)	36.68	27.2	63.9	63.9
Tetra Prisma (500-mL)	22.48	15.9	38.4	76.8
Tetra Prisma (250-mL)	12.00	12.5	24.5	98.0
Tetra Prisma (200-mL)	8.52	11.1	19.6	98.0
PET Systems				
PET bottle (750-mL)	58.59	28.6	87.2	116
PET bottle (187-mL)	24.11	20.4	44.6	239
Glass Systems				
Glass bottle (750-mL)	527	47.7	574	765
Glass bottle (187-mL)	151.91	10.9	163	872

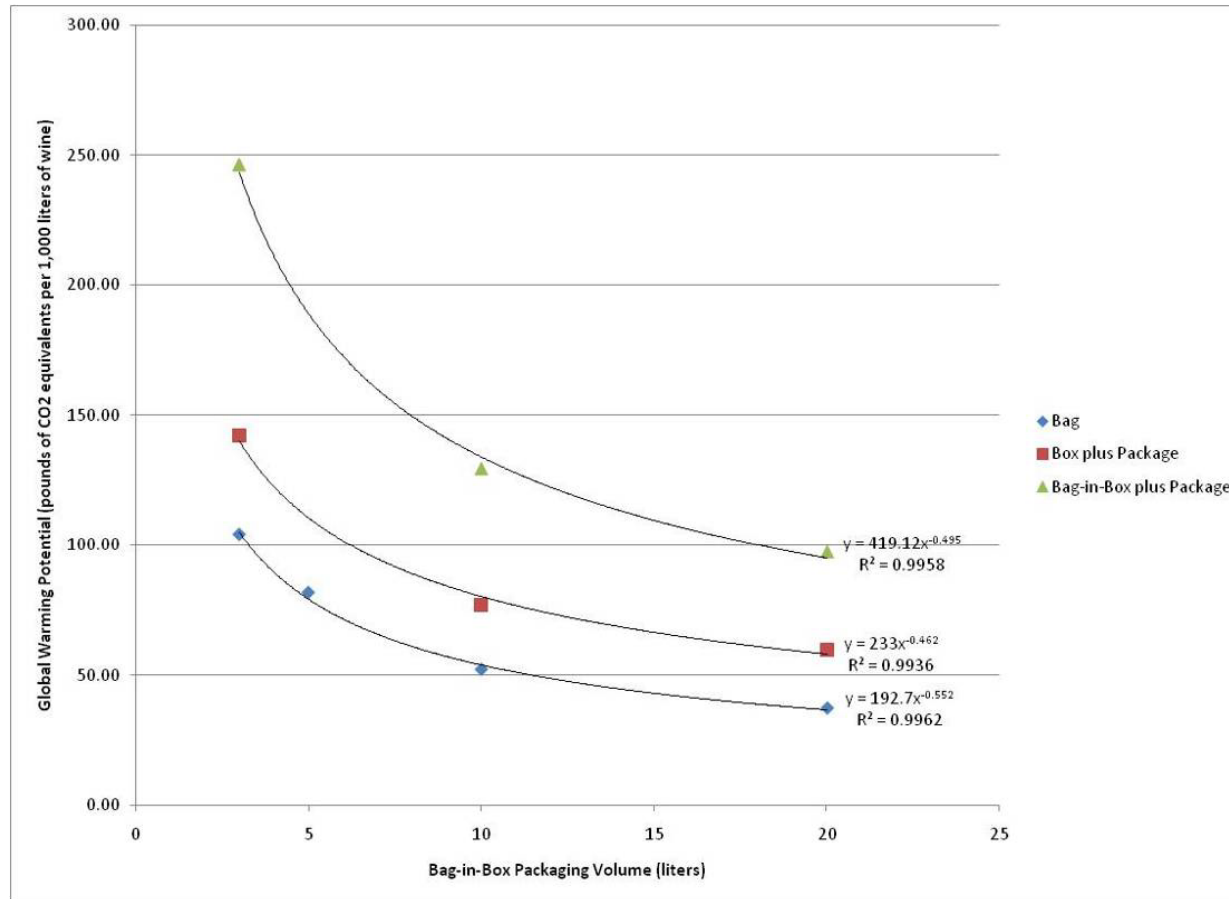
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Bag-in-Box's Global Warming Potential versus Packaging Volume:



Sources:

Franklin Associates, October 2006, Tetra Pak study titled *Life Cycle Inventory of Container Systems for Wine*

Summary of Results

1. General trend:

BIB =< Paperboard < PET < Glass

2. Why?

Mass / weight

Volume