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2001 REPORT ON POST CONSUMER PET CONTAINER RECYCLING ACTIVITY

FINAL REPORT

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INTRODUCTION

This report is intended to give the reader an overview of the recycling of injection, stretch blow molded PET containers in the United States. Information contained in this report was obtained through surveys conducted by the Association of Postconsumer Plastic Recyclers (APR), R.W. Beck, Moore Recycling Associates, US Department of Commerce and data generated internally by the National Association for PET Container Resources (NAPCOR). In order to present as accurate a picture of these activities as possible, additional data and information was obtained through discussions with individual collectors, intermediate processors, reclaimers, converters, brokers, exporters, resin producers, bottle manufacturers, public recycling officials, consultants and key industry members.

PET BOTTLES AVAILABLE FOR COLLECTION

After a sluggish 2000, growth in PET container usage rebounded to 834 million pounds in 2001. This was led by growth of better than 20% in the juice category reflecting the conversion of single serve sizes to PET from other materials. Continued strong growth in the still water and isotonic categories of around 15% also contributed significantly to the overall increase. While growth of PET in carbonated soft drinks (CSD) was tepid, the trend toward smaller sizes continued as the purchase of multi-serve sizes declined to about one third of the total by weight. Overall, CSD containers accounted for about 46% by weight in 2001 with all remaining containers (custom) at 54%.

NAPCOR has determined that the total number of pounds of PET bottles and jars available for recycling in 2001 was 3.768 billion. This number reflects the total amount of PET bottle resin used by U.S. bottle manufacturers from U.S., foreign and recycled sources less scrap generated and not reused, exported bottles and preforms and bottles less than 8 oz. in size. NAPCOR uses this number as the denominator in determining both recycling and utilization rates.

POST CONSUMER PET BOTTLE PURCHASES

The amount of post consumer PET bottles collected for recycling and sold in the U.S. was 834 million pounds (mmlbs) in 2001. The breakdown of buyers is as follows:

596	- U.S. Reclaimers
234	- Export Markets
4	- Composite Applications (other)
834	- Total Amount of U.S. Material Sold

The 234 mmlbs of post consumer bottles exported includes 25 mmlbs going to Canada, and the balance to China. 15.6 mmlbs of the bottles exported to China was in the form of dirty flake, the remainder in bales. This is by far the largest export number recorded to date and reflects increases to both Canada and China. The Canadian increase is the result of Canadian reclamation capacity reaching equilibrium with Canadian collection, while the dramatic increase in exports to China reflects U.S. buyers essentially pulling out of the curbside market during the fourth quarter. It must be noted that export data is now collected from buyers, sellers and at the ports resulting in more accurate information than in previous years. As a result, export totals from previous years may have been slightly under reported.

U.S. reclamation companies continued to supplement their purchase of the US post consumer bottles with bottles imported from Canada, Mexico and Europe totaling 70 mmlbs., as well as purchasing alternative feedstocks, i.e. strapping, film and sheet.

Post Consumer Bottles – Gross Weight Purchases (mmlbs.)	1995	1996	1997	1998	1999	2000	2001
A. Purchased by U.S. Reclaimers + Other	605	549	580	656	588	599	600
B. Purchased by Exporters	170	148	111	89	183	170	234
C. Total U.S. Material Recycled (A+B)	775	697	691	745	771	769	834
D. Post Consumer Bottle Imports	46	87	66	101	60	69	70
E. Total Bottles Used by U.S. Reclaimers (A+D)	651	636	646	757	648	668	670

2001 GROSS RECYCLING RATE

Total U.S. Bottles Collected and Sold for Recycling	**834 mmlbs**	=	22.1%
Total U.S. Bottles Available for Recycling	**3,768 mmlbs**		

Year	*Total U.S. Bottles Collected (MM lbs.)*	*Bottles on U.S. Shelves (MM lbs.)*	*Gross Recycling Rate*
1995	775	1,950	39.7%
1996	697	2,198	31.7%
1997	691	2,551	27.1%
1998	745	3,006	24.8%
1999	771	3,250	23.7%
2000	769	3,445	22.3%
2001	834	3,768	22.1%

PET BOTTLE BALE MARKETS

2001 saw the U.S. markets for PET bottle bales dominated for the first three quarters by North American buyers and then by Chinese buyers during the fourth quarter. A strong economy allowed North American buyers to push prices to levels that forced Chinese buyers out of the market for a short period of time in May. Conversely, the Chinese took advantage of the dramatic U.S. economic downturn in the fourth quarter to purchase large quantities of bales at the lowest prices in years. It must be noted that during this period, competing Chinese buyers often drove prices higher while North American buyers were absent from the market.

NON DEPOSIT PET BOTTLE BALE PRICES
(Picked up, Truckload quantities, Sellers dock)

	LOW	HIGH
JANUARY	$.10/ LB	$.14/ LB
FEBRUARY	.09	.12
MARCH	.10	.13
APRIL	.10	.14
MAY	.10	.15
JUNE	.08	.13
JULY	.08	.12
AUGUST	.08	.12
SEPTEMBER	.08	.12
OCTOBER	.08	.12
NOVEMBER	.05	.09
DECEMBER	.05	.08

RECLAMATION CAPACITY

During 2001, 16 plants owned by 15 different companies produced clean RPET from post consumer bottles. Fourteen of these plants with a capacity of 814 million pounds (mmlbs) gross weight in, operated the entire year, while two plants with total capacity of 24 mmlbs operated intermittently. The plants consumed post consumer bottles, pre consumer bottles, post consumer strapping and other feedstock totally 685 mmlbs for a capacity utilization rate of 81.7%. Seven are vertically integrated back to end product (3 bottles, 2 carpet, 2 strapping) and account for slightly more than 50% of total capacity. Six plants have technologies that have received letters of non-objection (LNO) from the Food and Drug Administration, which allows the RPET produced to be used in direct contact with various food and beverage products.

RPET Production Summary (MMlbs.)	1995	1996	1997	1998	1999	2000	2001
A. RPET Produced by U.S. Reclaimers from U.S. Bottles	496	438	486	513	457	476	476
B. RPET Produced by U.S. Reclaimers from Imported Bottles	38	70	55	75	47	51	44
C. Total RPET Production U.S. Reclaimers (A+B)	534	508	541	588	504	527	520
D. Clean Flake Equivalent from U.S. Bottles Exported	153	134	92	75	154	143	184
E. Total Clean Flake from U.S. Bottles (A+D)	622	572	578	588	611	619	660

UTILIZATION RATE

Clean Flake Produced from U.S. Post Consumer Bottles	476 mmlbs		
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Clean Flake Equivalent of U.S. Bottles Exported	184 mmlbs	=	17.5%
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Total U.S. Bottles Available for Recycling	3,768 mmlbs		

Year	Clean Flake Equivalent (MM lbs.)	Bottles on U.S. Shelves (MM lbs.)	Utilization Rates
1995	622	1,950	31.9%
1996	572	2,198	26.0%
1997	578	2,551	22.7%
1998	588	3,006	19.6%
1999	611	3,250	18.8%
2000	619	3,445	18%
2001	660	3,768	17.5%

2001 RPET MARKET

The quantity of clean RPET companies reported purchasing in 2001 decreased to 701 mmlbs. All product categories showed losses with the exception of bottle applications, specifically food grade. Even with U.S. textile markets falling apart, fiber applications continued to dominate RPET purchase and use. Conversely, demand from sheet and film markets disintegrated, reflecting an abundance of cheap, wide spec virgin material alternatives. Nevertheless, a total of 64 companies reported using some amounts of RPET in 2001. Had the economy not been disrupted in the fourth quarter, U. S. converters would have used significantly more RPET than in 2000.

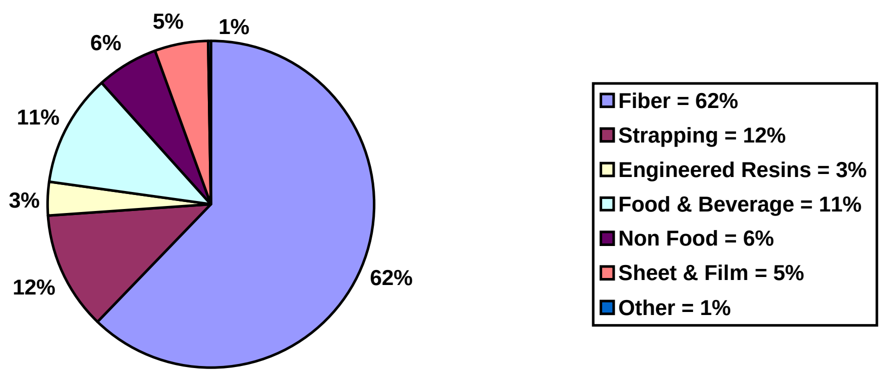
Again, the difference in U.S. RPET production and end use was supplied by imports, mostly Canadian and European reclaimers and to a lesser degree Mexican and Brazilian.

RPET Product Categories
RPET used (mmlbs)

	1996	1997	1998	1999	2000	2001
Fiber	292	320	415	417	452	435
Sheet & Film	69	71	89	68	65	37
Strapping	66	58	67	80	101	82
Engineered Resin	24	26	30	26	27	24
Food & Beverage Bottles	24	41	52	68	54	77
Non-Food Bottles	71	53	47	50	40	44
Other	1	1	7	9	5	2
Total US Converter Consumption	547	570	707	718	744	701

The percentage of each recycled PET end use category is shown in the following graph:

RPET End Use Products 2001



SUMMARY

Conversions of single serve juice containers to PET using various performance enhancing technologies spurred renewed market growth in 2001. Consumer preference for smaller sizes is providing growth opportunities in all beverage categories based on the delivery of product using more containers. The exception to this is the extremely successful one gallon container being used by juice and water companies. Substantial growth was also seen in the dairy categrory exemplified by Nestle’s creamer bottle, which should continue in 2002. The use of performance enhancing technologies is also expected to continue as additional market share is attempted to be accessed in beer, alternative alcoholic beverages and CSD sizes half liter and less.

For the first time since 1998, a significant increase in the amount of bottles collected for recycling was recorded, increasing 65 mmlbs over 2000 volumes. U.S. reclaimers were well positioned to take advantage of the new volumes for the first three quarters with Chinese exporters being competitive only in west coast markets. The severe economic disruption brought about by the events of September 11th caused most U.S. reclaimers to drastically reduce their raw material purchases during the fourth quarter. Hardest hit were the strapping, fiber and automotive markets.

The movement of bales to and from Canada continued with U.S. reclaimers buying about 40 mmlbs of Canadian bales and Canadian reclaimers buying 25 mmlbs of U.S. material. With expansions by two Canadian reclaimers completed late in 2001, Canadian reclamation capacity is about equal to collection. This will in turn exacerbate the tit-for-tat movement across the border.

Chinese buyers took advantage of U.S. fourth quarter woes to not only dominate west coast markets, but midwest and eastern markets as well. Often in the fourth quarter, Chinese buyers were competing only with themselves for U.S. material. It is now apparent that China has a reclamation infrastructure as large or larger than the U.S., which depends heavily on U.S. imports. While questions remain as to the impact of increased bottle consumption and the corresponding increase in collection efforts in East Asia, as well as the impact of the planned increase in Chinese VPET production, it is clear that the Chinese will continue to play a major role in the U.S. PET industry for at least the next couple of years.

U.S. reclamation capacity remained stable in 2001 but is expected to increase in both 2002 and 2003 with one new plant and two expansion coming on line. These are slated to supply the projected increased demand in the strapping and bottle grade sectors.

Clearly, the requirement by the Coca-Cola Company, to incorporate 10% post consumer RPET in their bottles was a major market driver in 2001. This will continue in 2002 as their demand increases and different suppliers explore options to meet that requirement.

Aside from strapping and bottle applications, the carpet industry continues to be the largest consumer of RPET. The announcement by Beaulieu Fibers that as of January 1, 2002 they would be using RPET exclusively represents a 15% increase in demand for that sector.

As reclaimers and end users alike attempt to forecast pricing, it is still apparent that as additional RPET demand surfaces either through a recovering economy or new applications, supply limitations will continue to frustrate price stability.