

Old Corrugated Containers (OCC)

OVERVIEW

Corrugated cardboard, which has been in existence for more than a century, is the world's leading material used in shipping and merchandising. The recycling of corrugated cardboard has gone on for decades, primarily through commercial interests such as the grocery industry. Now, due to increased awareness and rising landfill rates, many office buildings and institutions have established recycling programs as well.

Corrugated boxes are a very environmentally efficient type of packaging. No new tree fibre needs to be harvested to manufacture corrugated boxes as the feedstock used is either byproducts of the lumber industry (wood chips or sawdust) or recyclable cardboard.

Old Corrugated Cardboard (OCC), otherwise known as containerboard, is the most heavily collected waste paper grade in Alberta. OCC has always been a highly sought-after material, as it is usually uncontaminated, generated in large volumes and is easily recycled into new paper products. While it can be recycled into a number of paper products, it is primarily manufactured back into

new corrugated products and boxboard.

OCC is considered the bellwether grade for waste papers. As the economy heats up and demand for finished products grows, so will the demand for waste paper including OCC and, to a lesser degree, ONP and mixed paper. The paper recycling industry has received a lot of attention over the last several years as it has significantly expanded its capacity to recycle OCC and other paper grades.

As with all paper grades, the main strength of a paper grade is not so much a factor of new

capacity, but demand for the finished product. Industry insiders attest to the fact that you can build all the capacity you want, but if no one buys the product, markets will not improve.

At 70%, Alberta has achieved a very successful rate of recovery for OCC.

Pricing

End markets for corrugated products diminished in 1996, considerably slowing down the demand for OCC and other substitute waste paper grades. The resulting action was a return

KEY INFORMATION

Percentage of Waste Stream: 7.5%

Main Generators: Grocery stores, shopping malls, warehouses, restaurants and construction sites.

Contaminants: Waxed cardboard, boxboard

Alberta End-Markets: BPCO Inc. and IKO Industries.

Out-of-Province Markets: B.C., Ontario, Oregon, Wash, Export Markets

Current Market Value: Baled \$65 - \$100
Loose \$25 - \$30

Secondary Products: Corrugated containers, boxboard and construction products.

Market Factors: Demand/supply balance expanding mill capacity, utilization rates, economic growth and high virgin fibre cost.

Outlook: Stable markets with expected steady improvement.

Alberta Recycling Market Profile - Old Corrugated Containers

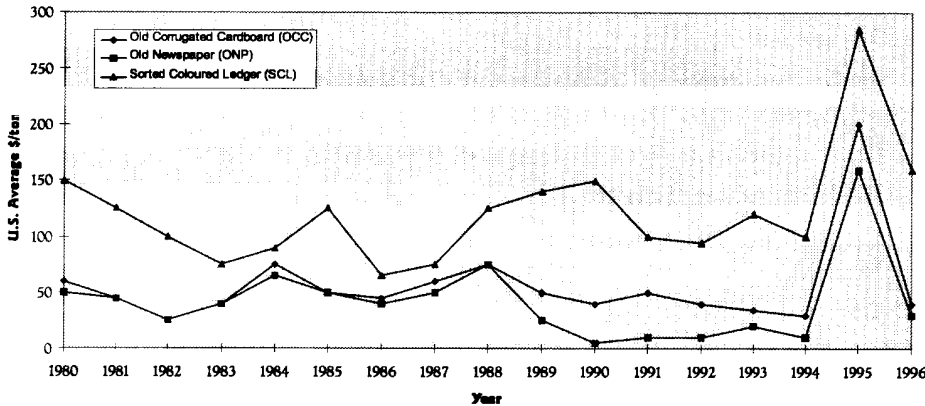
to prices more in keeping with historical values. There are several additional factors which can affect prices for waste paper grades including the relative prices of virgin and recycled fibres, the availability of

Ltd. of Calgary and BPCO Ltd. of Edmonton, both of which incorporate a fluctuating percentage of OCC in their manufacture of building products. The amount used in their plants depends on the market price of

stream in North America and a number of additional projects are expected to be completed by the turn of the century. This should have a very positive effect on North America's OCC market.

Many existing mills which recycle OCC use a blend of OCC and cleaner pre-consumer waste paper grade. In order to keep raw material (waste paper) costs under control, many of the new mills have made slight modifications in the type of raw material used. New mills are being designed to use higher percentages of OCC and other paper wastes such as mixed paper in order to reduce their dependence on one feedstock. Being tied to one feedstock hurt many of the mills when prices skyrocketed for

Historical Market Pricing



Source: Paper Recycler, Pulp & Paper Factbook, Jacob-Stirring Consultants, 1996

alternatives, the impact of legislation, market psychology and exports. In fact, with so many factors affecting the demand/supply balance, it is difficult to predict how prices will react even in the short term. The price decline through 1996 was caused by a convergence of several factors.

As with all commodities, recovered paper prices are determined by the balance between supply and demand, or more accurately the perception of that balance. If consumer demand falls, this will eventually lead to a fall in recovered paper demand, regardless of capacity.

Market Demand

There are two Alberta end markets for OCC: IKO Industries

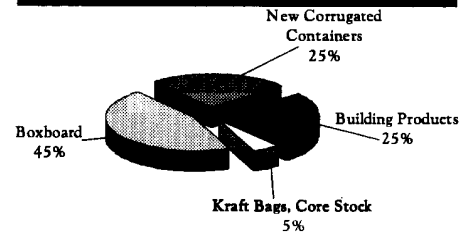
OCC. If prices climb too high, they will use a higher proportion of mixed papers, newspapers and wood waste in their production.

When prices for OCC are near historical values the bulk of OCC collected in Alberta is sent to out-of-province markets in BC, Ontario, Oregon, Washington and Asia-Pacific.

More than any other single factor, improvements in North America's economy — specifically, growth in durable goods orders, increases in automobile production and new housing starts — have been the driving force for growth in OCC markets.

A positive factor for OCC markets is that a significant amount of new OCC recycling capacity has recently come on

Alberta OCC End Markets 1996



certain types of waste paper. In addition, many new mills have the ability to switch between waste paper and wood chips depending on which is more cost effective.

Recovered paper markets have become more and more of a global commodity business, and the importance of tracking changes in other geographic areas has grown. A number of new projects have also come on stream in Asia-Pacific which will likely be looking towards North America for a large component of their needed OCC. In the last few years, many of the

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Asian countries have aggressively established domestic waste paper collection programs in an effort to reduce their dependence on export grades.

Supply & Collection

Almost all of the OCC collected in the province is eventually handled by one of Alberta's waste paper brokers who typically sort out any contaminants and then process and bale the material according to their end user's specifications.

Many municipalities and other large OCC generators have installed compactors or balers at their recycling facilities in order to better handle the material and increase the value.

Outlook

Demand for Alberta's OCC should remain stable well into the future. Prices are expected to remain low, however, for most of 1997. Other than current low prices, markets for OCC in the long term remain optimistic.

With all of the new capacity coming on stream domestically and internationally, it's inevitable that demand and supply will find a balance which should lead to higher prices. Current prices for OCC are near the low end of the historical range, so some analysts are predicting higher prices by the end of the year. This will be determined by the price of market pulp and the performance of the

U.S. economy and the economies of Asia-Pacific.

For the most up-to-date information on paper recyclers, contact the Alberta Recycle Info Line at 1-800-463-6326 or 427-6982 in Edmonton