Did you know that the asphalt pavement you drive on is 100 percent recyclable and leads the way as one of the most recycled materials in North America? Yes, it is true! Asphalt is recycled more than aluminum, paper or plastic. Asphalt pavement is a lot like a chocolate covered mint. It’s smooth and dark on the outside and refreshingly “green” on the inside. Although we don’t recommend actually biting into a piece of asphalt pavement, we do suggest that you read further to learn the sweet sustainable facts about RAP.

WHAT IS RAP?

Long before there was an awareness of the benefit of being green, RAP was first introduced as a cost saving measure to reduce the need for virgin materials in the wake of the late 1970’s Arab oil embargo. Because RAP is located on-site at hot mix asphalt plants there is no need to transport in new material. This aspect greatly reduces CO₂ emissions due to the fact that no fuel is burned for the extraction and transportation of virgin materials. Over the past 30 years, millions of tonnes of RAP have been recycled into hot mix asphalt (HMA) pavements saving millions of tonnes of CO₂ from being released into the atmosphere. In 2010 alone, Ontario used 2.3 million tonnes of RAP saving 200,000 tonnes of CO₂.

Once the surface of an asphalt road has surpassed its life span (about 25 years), it is milled off and becomes RAP. RAP is a “treasure trove” of pre-processed road-building materials and consists of two main components, aggregate and asphalt cement. Aggregate makes up about 95 percent of the pavement and the remaining 5 percent is asphalt cement, which binds together the aggregate, adding strength and flexibility to the pavement.

HOW IS RAP USED?

According to a recent survey conducted by the National Asphalt Pavement Association, approximately 85 percent of all RAP is recycled into new HMA. The remaining 15 percent is reused using in-place rehabilitation techniques such as cold-in-place recycling of HMA pavement layers, using minor amounts of new asphalt cement; or, full-depth reclamation of the HMA pavement layers and the underlying granular material, with or without the use of additional asphalt cement. RAP is also reused as granular for shouldering and pathways.
HOW IS RAP USED? (Continued)

On average, an individual asphalt pavement in Ontario will contain 17 percent RAP. In an effort for Ontario to have the greenest roads in North America, the Ontario Ministry of Transportation (MTO) recently increased the allowance for RAP in HMA. Now, up to 20 percent RAP is allowed in surface courses (the top layer of the pavement); and, up to 40 percent in binder courses (the asphalt layer immediately below the top layer).

DOES RAP AFFECT THE QUALITY OF THE PAVEMENT?

Using RAP lowers the overall cost of HMA by greatly reducing the need for virgin materials, without reducing the quality of the pavement. The aggregate within RAP has already been processed to ensure premium quality for use as pavement and is processed again to be incorporated into new HMA. RAP is blended and crushed to produce consistent aggregate gradation and asphalt cement content to ensure that the performance characteristics of the finished pavement are equivalent to those of a road constructed with all virgin material. A survey carried out by the National Center for Asphalt Technology (NCAT), located at Auburn University, in Auburn, Alabama, showed that aggregate variability in RAP was less than the variability of virgin aggregate stockpiles.

WHAT ARE THE BENEFITS OF USING RAP?

Using RAP is a win-win scenario. It is good for the tax payer, good for the environment and is good for the quality of our roadway infrastructure.

Using RAP:

- Reduces road building costs by significantly reducing the need for virgin material.
- Saves and reuses precious, non-renewable aggregate and petroleum resources.
- Reduces the CO₂ generated by the extraction and transportation of virgin aggregates and asphalt cement.
- Keeps large volumes of materials out of already overloaded landfills.
- Ensures a premium quality aggregate supply for paving projects.
- Significantly contributes to provincial and municipal recycling obligations.

When we pave with asphalt, we put aggregate and asphalt cement in the “bank” for the benefit of future generations.

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