



City of Portland Green Purchasing Case Study

Soy-Based Asphalt Release Agent

Purchasing Green

Each year, the Portland Bureau of Transportation (PBOT) Maintenance Operations program hauls and applies thousands of tons of asphalt to complete street maintenance projects. Asphalt, a mixture of rock and tar, sticks to the beds of dump trucks and asphalt-spreading tools.

In the past, crews used diesel oil to prevent sticking and to clean asphalt and tar from truck beds and tools. In 1999, when the U.S. Environmental Protection Agency began to regulate the use of materials containing volatile organic compounds (VOCs), including diesel, the city tested less harmful alternatives. The PBOT Maintenance Operations program currently uses a biobased asphalt release agent containing soy.

Benefits

Because of its VOC content, diesel presents risks to human health and the environment. VOCs contribute to the formation of smog and can cause respiratory and other health conditions in workers. They can also contaminate soil and groundwater with hazardous chemicals such as benzene, toluene, and naphthalene.

Unlike diesel, biobased asphalt release agents such as the soy-based product used by the PBOT Maintenance Operations program are typically nontoxic, containing little to no VOCs. This product is also biodegradable, easy to clean up, and reduces dependence on petroleum because it is made from a renewable resource—soybeans.

Cost

The biobased asphalt release agent currently used by the PBOT Maintenance Operations program is a concentrated formula that can be diluted at various levels to serve different needs. For example, they use a 20:1 solution for releasing asphalt and a 5:1 solution for cleaning. Because of this ability to be diluted, the soy-based asphalt release agent costs up to 50 percent less than diesel per gallon of mixed product.

Performance

Maintenance personnel report that the soy-based asphalt release agent is very effective. The PBOT Maintenance Operations program continues to test new asphalt release agents to ensure they are using the best available products that maximize performance and minimize environmental impacts.



The PBOT Maintenance Operations program uses a soy-based product to prevent asphalt from sticking to tools and equipment.

At a glance –

Who –

- PBOT Maintenance Operations Program

Product –

- Soy-based asphalt release agent

Cost –

- Half the cost of diesel per gallon of mixed products

Benefits –

- Safer for human health, wildlife, and the environment
- Contains renewable materials
- Reduces dependence on oil

“We’ve found that soy-based asphalt release agents are effective, easy-to-use, and cost efficient. It makes sense for both us and the environment to use these products.”

Peter Schillaci,
Street Systems Program Supervisor,
PBOT Maintenance Operations

Lessons Learned

One issue with diesel is that it softens asphalt and creates potholes if it comes into contact with pavement. At full strength, many biobased asphalt release agents produce similar results. Although this problem is largely avoided by using products that can be diluted, mixtures can separate over time. If workers forget to shake the separated product before use, it is dispensed at full strength. One of the features PBOT Maintenance Operations program likes about its current asphalt release agent is that it does not separate as rapidly as other products, reducing this problem.

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About PBOT Maintenance Operations Program

The Portland Bureau of Transportation’s (PBOT) Maintenance Operations program preserves the public investment of \$8.8 billion in transportation facilities and \$5.9 billion in sewer and stormwater infrastructure. Maintenance employees are responsible for street and sidewalk preservation, street cleaning, pothole repair, stormwater management, street leaf removal, roadside vegetation maintenance, sewer cleaning and repair, street light and traffic signal maintenance, parking meter maintenance, signs and pavement marking maintenance, emergency response (snow and ice, floods, landslides), and much more.

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