



# ShopTalk

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## Gunk-Eating Bacteria Swallow Waste

Using a technology based on a process found in nature, several Spokane area businesses exchanged their traditional parts cleaners for a newer technology. They decided to use bacteria to do the job of petroleum-based solvents. On the whole, the new cleaners work well and have many practical applications.

### How it Works

The theory is simple. Bacteria live in a mixture of liquids and solids, called a suspension. In the suspension, bacteria break down hydrocarbons (oily waste and sludge) into nutrients. The nutrients allow the bacteria to flourish and reproduce. The bacteria generate water and carbon dioxide as waste. The system keeps itself going until the oil and grease solids are used up. After the dirty parts are fed to the bacteria, inorganic particulates drop to the bottom. These are caught by a filter and sediment trap.

### What Are the Advantages?

According to Brian Duplanti, service manager of Camp Chevrolet-Geo-Subaru-BMW-Volvo of Spokane, the company chose to use the bacteria as part of an overall pollution prevention

effort in the service department. They replaced ten solvent-based parts cleaners with ten bacteria cleaners. To use the new parts cleaners, employees had to make some changes in their work habits. There was some initial resistance from the mechanics, but the new technology has made believers out of them. The bacteria parts cleaners do an excellent job on the parts and are particularly popular in the diesel mechanics' shop. The heavier the coating of oil and grease, the better job the new cleaners seem to do. "It has been a win-win situation for us," says Ed Flamand, shop foreman. Duplanti says that the bacteria units now do most of the work, so the shop only kept two solvent-based parts cleaners.

Scott Garner from Saturn of Spokane reports similar

satisfaction with his parts cleaner.

He says the bacteria unit "works great."

He says that his employees report less dermatitis and cracked skin, which they had suffered when they used solvent-based cleaners.

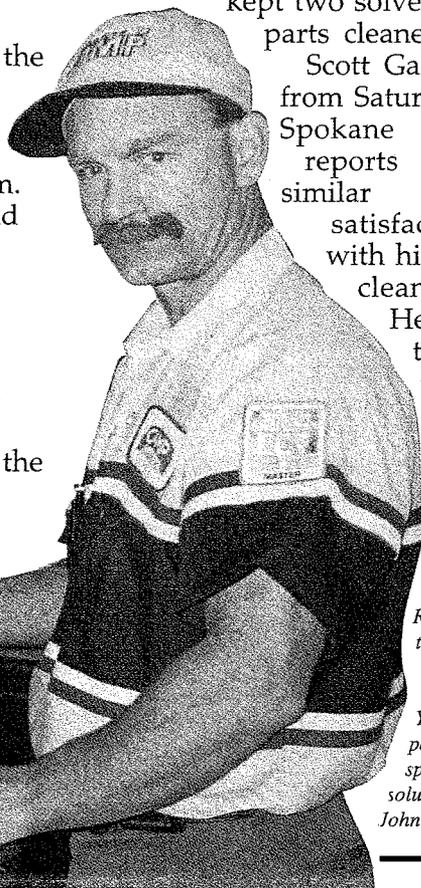
### Bacteria Need Food

In contrast, some companies have not been pleased with the bacteria cleaners they have tried. Rod Riffel of Keytronics, a Spokane computer keyboard manufacturer, tried using the technology for cleaning circuit boards in an ultra-clean application. In this instance, the surfaces were already so clean that they couldn't provide enough nutrition for the bacteria. The bacteria starved and Keytronics had to return to solvent-based cleaners.

### Want To Try This Technology?

When properly managed, this technology can reduce your hazardous waste, improve worker safety and get the cleaning job done. If you think you might want to try these "bugs,":

- ✓ Research to see if bacterial cleaning is right for you
- ✓ Test filters and grit traps to see if they designate as hazardous waste
- ✓ Ask employees if the system will work for your application
- ✓ Once the system is installed, be prepared to monitor for fluid levels and temperature.



Ron Nowaski, technician at Camp Chevrolet, Yakima, washes parts with a special bacterial solution. Photo by John Blunt

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## Check Out Ecology on the Web

If you have Internet access there's a wealth of materials waiting for you on Ecology's Home Page (<http://www.wa.gov/ecology/>).

The home page will take you to:

- ✓ Ecology Laws and Regulations
- ✓ Ecology Publications and Ordering Forms
- ✓ Agency Expertise Directory
- ✓ Ecology e-mail and Telephone Directory
- ✓ Ecology Regional Contacts and Reception Services
- ✓ Public Events and Meetings Calendar
- ✓ Press Releases

The Hazardous Waste and Toxics Reduction Program site (<http://www.wa.gov/ecology/hwtr/index.html>) includes

alternatives to hazardous substances, waste reduction, environmental compliance and reporting information. Plus:

- ✓ Pollution Prevention Planning Guidance and Forms
- ✓ Getting technical assistance
- ✓ Dangerous Waste Report Forms and Instructions
- ✓ Electronic Annual Dangerous Waste Reporting
- ✓ Toxic Release Inventory Summary Report
- ✓ Contaminated Site Registry
- ✓ Used Oil Collection Facilities
- ✓ Current and past issues of *Shoptalk*

Another site shows how some businesses stay successful while caring for the environment.

Check out "Economic Prosperity and Environmental Progress - Leaders, Innovators and Success Stories in Washington State." Find Volumes 1 & 2 at (<http://www.wa.gov/cted/success/> and <http://www.wa.gov/cted/success2/>)

## Toxics Release Inventory Expands to New Industries

Seven new industries will be subject to the Emergency Planning and Community-Right-to-Know Law. They will become part of the Toxic Release Inventory program focused on releases and waste management activities of the manufacturing sector. The new industries are:

- ✓ Metal mining, except ores, metal mining services and radioactive ores
- ✓ Coal mining, except coal extractions
- ✓ Electricity generation, limited to facilities that combust coal and/or oil for generating electricity in commerce
- ✓ Hazardous waste treatment, limited to facilities regulated under RCRA Subtitle C
- ✓ Solvent recovery, limited to facilities primarily engaged in solvents recovery on a contract or fee basis
- ✓ Wholesale chemical and allied products
- ✓ Wholesale petroleum bulk terminals and stations

Manufacturers have reported under the Toxics Release Inventory since 1987. Federal facilities also report if they meet reporting criteria.

Criteria used to decide if a business must report include: having ten or more full-time employees, **and** manufacturing or processing more than 25,000 pounds of a listed chemical, **or** using 10,000 pounds of a listed chemical.

The first reports from the new industries are due July 1, 1999, for the 1998 reporting year. If your business is in one of these categories, you should collect data now to determine if you are subject to the requirements.

For information on Toxic Release Inventory reporting, call Ecology's Hazardous Substance Information Office at 1-800-633-7585, or EPA's EPCRA hotline, 1-800-535-0202.

## Environmental Expo Coming to Spokane

The ninth annual Environmental Forum for Business Expo will be held October 20-22, at the Spokane Convention and Ag Trade Center. Popular speakers William McDonough and David Crockett will be back along with other special guests.

This year's theme is Environmental Partners - Business and Community Working for the Environment. For more information call Lucy Gurnea at (509) 358-2073 or e-mail her at [enviro@sirti.org](mailto:enviro@sirti.org)



## Free Information

To order these or other publications call Ecology's publication office at (360) 407-7472, or e-mail: [ecypub@ecy.wa.gov](mailto:ecypub@ecy.wa.gov)

*1996 Washington State Toxic Release Inventory Summary Report*, #98-402

*Ecology on the Internet Fact Sheet*, #97-1260-HWTR

*Spill Reporting and Cleanup in Washington State*, #94-187

*Universal Waste Rule for Batteries and Mercury-Containing Thermostats Fact Sheet*, #98-407

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### Case Study: General American Transportation Corporation

GATX, a bulk liquid storage and distribution terminal in Vancouver, has found a way to provide another company with a useful product. GATX is delighted because this product used to be a hazardous waste, with its associated management, bookkeeping and disposal costs. GATX historically generated about 19,000 pounds per year of "spent scrubber solution" by capturing entrained phenolic compounds in one of its air emission control units. This waste was managed as a hazardous waste and sent to a treatment, storage and disposal facility.

Judy Schramm, GATX's Environmental Safety Coordinator found a way to recycle the terminal's phenol waste.

According to Schramm, Ecology staff in Vancouver examined the proposed waste to product exchange. Ecology needed to be sure that none of the hazardous constituents in the waste were "along for the ride." In this case, all of the constituents were part of the product required by the exchange partner.

Ecology gave GATX the go-ahead to start sending the waste to Borden North America Resins, as a "substitute product." Borden used to purchase two separate products that can now be replaced (in part) by the GATX spent scrubber solution. This exchange saves the GATX terminal about \$10,000 a year in avoided hazardous waste shipping fees.

The exchange represents a low capital investment, although the facility had to do a lot of work in the start-up and oversight to gain approval for the exchange. GATX and Borden established written protocols for materials management; determined process capacities, contract agreements, safety and health records; and set up working contracts with each other and customers. Ecology staff determined that this exchange of materials is legitimate recycling, and welcomed the transaction.

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### Tracking Materials as a Pollution Prevention Strategy

Have you ever looked at your production process to find out what your hazardous wastes are costing you? To find out, Ecology sponsored a materials tracking case study at United Coatings in Spokane. The project is helping the company select and implement pollution prevention measures that will reduce costs. To identify cost saving opportunities, consultants from Tellus Institute examined records, looked at inventories and processes, and interviewed employees.

The research gave them a good picture of the total cost of different products, including the previously hidden costs related to hazardous materials use. They uncovered several costs related only to hazardous materials requirements, such as special handling, storage and reporting. They found that just a few product lines were costing the facility large amounts because they generated hazardous waste or used more energy. Solvent-based products generated almost all the hazardous waste; needed special temperature controlled storage rooms; and demanded more employee time for monitoring, reporting, training and production.

Prior to the case study, these overhead costs had been shared equally by all product lines. A possible solution to this lopsided division of overhead costs would be to assign one set of overhead costs to water-based products and another to solvent-based products. The new information could help managers decide the profitability of different products and product lines.

At United Coatings, an environmental commitment was rewarded after the company earned a green star designation. This environment label on the

product immediately increased sales as far away as Hawaii.

In this study, detailed materials tracking revealed that *different products* have different costs related to the use of hazardous materials. In other facilities, materials tracking may reveal that *different steps in production* have different costs related to the use of hazardous materials. Identifying these costs is the first step in their possible reduction or elimination through pollution prevention measures.

When considering materials tracking for your facility use these four basic guidelines:

- ✓ Check records and inventory and only track materials that can be allocated to a specific product or process
- ✓ Look at how materials are used and how you can evaluate your information. If one material or combination of materials has many uses, calculate these in a logical manner
- ✓ Some materials that are expensive or carry a greater regulatory burden (for example, if they generate Extremely Hazardous Waste) can be identified as priority materials and tracked more carefully than others
- ✓ Link your tracking to everything, including purchasing, inventory, usage and waste generation

For help with materials tracking, call Mark Benedict at (509) 575-2803.

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### Did You Know?

Scraps of raw materials can often be returned to your supplier for credit. If you keep good track of inventories, leftovers will not become waste.

## Questions and Answers

**Q** How should electronics such as computers, TVs, or VCRs be handled when they no longer work or become outdated?

**A** Many of these items contain hazardous materials such as mercury or lead. Before discarding these items, look into reuse opportunities such as donating them to schools or non-profit organizations.

You can also contact the materials exchange near you, or call King County's IMEX, Industrial Materials Exchange (206) 296-4899 or e-mail IMEX at [imex@metrokc.gov](mailto:imex@metrokc.gov)

Check out an excellent website: the Environmental Protection Agency's List of Computer and Electronic Reuse and Recycling Options at <http://epainotes1.rtpnc.epa.gov:7777/r10/owcm.nsf/recycle/pc-cycle>

If you must dispose of these items you will be responsible for determining if they designate as hazardous waste.

**Q** If I don't plan to ship my waste drums out yet, do I have to label them with a waste code?

**A** No. The waste code or codes that describe the type of waste (example, D001 for ignitable waste) is not required on the label until the container is prepared for shipment.

Be sure to follow the basic requirements for labeling containers that are being used to accumulate hazardous waste. These include:

- ✓ A label or marking with the words "hazardous waste" or "dangerous waste"
- ✓ A label or sign identifying the major risk (for example, flammable, corrosive, or toxic)
- ✓ The date that the waste was first placed in the container (accumulation start date)

Durable hazardous waste labels, yellow with red border, are available from safety supplies vendors. For more information, refer to the Dangerous Waste Regulations, Chapter 173-303-WAC, Sections 200 and 630.

## Ecology Contacts

Remember, your business is liable for all hazardous wastes generated. If you are uncertain about your responsibilities as a hazardous waste generator, call your nearest Ecology office and ask for a hazardous waste specialist. For information on reducing or recycling hazardous waste, ask for the toxics reduction staff, also at the following numbers:

*Bellevue:* (425) 649-7000

*Lacey:* (360) 407-6300

*Yakima:* (509) 575-2490

*Spokane:* (509) 456-2926

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## Shoptalk

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