Eco-Efficiency Centre
Committed to Excellence and Efficiency

Fact Sheet: Eco-Efficiency in the Auto body Repair and Painting Industry

Introduction

The auto body repair and painting industry in Nova Scotia is made up of shops of all sizes that deal with collision repair, body work, frame adjustment and body painting. There are approximately 300 auto body shops in Nova Scotia. Companies provide service for independent clients or service their own fleet of vehicles.

Wastes produced by auto body repair and painting activities include a variety of hazardous and non-hazardous wastes:

- Oils and thinners
- Paint and primer wastes
- Paint sludge
- Oil and solvent contaminated rags
- Used cans
- Filters (spray guns and paint booths)
- Sanding dusts (fibreglass, sand, and plastics)
- Masking materials
- Scrap materials
- Air emissions of Volatile Organic Compounds (VOCs)

This fact sheet was prepared by the *Eco-Efficiency Centre* - a non-profit, non-government educational and environmental management support centre for small and medium-sized enterprises in Nova Scotia. The Eco-Efficiency Centre was established in 1998 as a partnership between Dalhousie University and Nova Scotia Power Inc., and is supported by private corporations, governments and foundations. The Centre assists companies to achieve better environmental and economic performance through resource conservation, pollution prevention, recycling, reuse, and general good environmental practices.

Eco-Efficiency

What is Eco-Efficiency?

Eco-efficiency is a practical and systematic approach that businesses can adopt in setting and achieving environmental and business performance objectives. It is very closely associated with and complementary to other concepts such as Occupational, Health and Safety (OHS), Total Quality Management (TQM), and Pollution Prevention (also known as source reduction). It involves changing processes, finding alternatives, and reducing or eliminating the generation of toxic wastes instead of dealing with problems of cleanup or disposal after the fact. It also includes extending product liability, enhancing material recyclability and maximizing the use of renewable resources. Eco-efficiency means doing more with less, creating and providing quality products and services while reducing resource use, waste and pollution along the entire value chain. It is not only about managing waste after it is created, but strives towards preventing and minimizing waste in the first place.

Auto Body Repair

Auto body repair consists of procedures involved in collision repair and frame alignment. Activities include welding, dent removal, body filling, body section adjustments and alignments. Some waste reduction measures in this area of the operation include:

- Welding equipment and blowtorches are essential to body repair; this equipment uses compressed gasses. The valves on these gas cylinders should be closed when not in use, to reduce the chance of gas leaking from the cylinder.
- Save large pieces of material to use for other small jobs. This reuse will cut down on waste produced. It may also prevent waste that is generated when removing a small amount of material from fresh stock.
- Ensure that you have an effective system for collecting/segregating any metal scraps that cannot be reused. There are many scrap metal dealers in the local area.
- Collect sanding dust by using a broom and dustpan or vacuum. Also consider a vacuum sanding system to collect dust while sanding.
- Avoid over-mixing filler to prevent waste.
- Introduce a preventive maintenance program for all shop equipment. If you perform fluid changes or equipment repairs in-house, ensure that fluids are properly collected, recycled and/or disposed of.

Auto Body Painting

Painting is the greatest source of waste from an auto body shop. In the painting process, the vehicle surface is first prepared by grinding, filling with auto body fillers, and sanding. The area is primed with a coating and then a final coat of paint is applied. Wastes from painting include waste paint (now banned from landfills in Nova Scotia), solvents, overspray, masking material and paint cans/filters. There are methods to reduce waste in the painting process. Remember that all employees involved in painting should be trained in the appropriate procedures.

Did you know?
Using high efficiency painting techniques can reduce expense:

- HVLP spray wastes by 15 – 35%
- Airless spray wastes by 30 – 40%

Painting Equipment

A significant amount of paint is lost due to inefficiencies in transfer. A typical air spray gun has a transfer efficiency of 20–40%. There are new types of painting equipment with higher transfer efficiencies. Such painting methods will reduce losses due to overspray and VOC emissions. These include:

- HVLP (High Volume Low-Pressure) spray guns reduce overspray and improve transfer efficiency due to their low pressure.
- Paint usage can be reduced up to one third.
- The finish quality is still very good to excellent.
- Airless and Air-assisted methods are very good for undercarriage, utility and truck equipment painting, where a high quality of finish is not required.
- Electrostatic painting is performed by supplying an electrical potential of over 60,000 Volts between the paint particles and the vehicle. Electrostatic painting can reduce material costs by 20%. This is due to less coating being used per square foot.
- Electrostatic methods are useful in the full body painting of vehicles due to difficulties in matching paint color and painting recessed areas.
- This method is also practical for the painting of utility vehicles.
- Electrostatic painting works best for the application of non-metallic paints.
- Use well ventilated paint booths with filters, in order to reduce the amount of VOCs that are released and to recover waste paint.
- Recycle/reuse spent solvents.

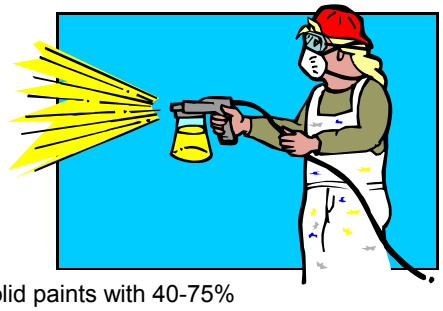
Painting Techniques

Transfer efficiency is also dependent on operator skill. Operators should be well-trained in methods that will produce both a high quality finish and reduce paint usage and waste. Over spray not only results in waste in lost paint, but also increases the amount of solvent needed for cleanup.

- Spray slowly and evenly (gun speed at approximately 250 ft/min).
- Maintain correct distance from surface (6-8in)
- Use suitable air pressure, excess pressure causes paint to bounce off surface. Well-regulated pressure control can increase transfer efficiency by 30-60 %.
- Keep gun perpendicular to surface. This will prevent arcing and spraying into the air.
- Paint cups should be scraped of excess paint before being rinsed in solvent.
- Use Teflon-lined paint cups, this will prevent paint from sticking and make cleanup easier.
- Use a gun cleaning station to recover the solvent used to clean the gun.
- Use reusable filters.
- Reuse masking material as many times as possible. Larger pieces can be cut to cover smaller areas.

Paint and Solvent Use

- Control the dispensing and mixing of paints and solvents. This will help to prevent waste from over-mixing or wasteful use.
- Use a “first in, first out” inventory system. Order in bulk when possible but do not order supplies that will not be used before expiry.
- Use water instead of oil based paints whenever possible because they do not contain VOCs.



- Use high solid paints with 40-75% less VOCs.
- Powdered paints are preferable to liquid paints.
- Give excess paint to customers for touch-ups.
- Use as little solvent as necessary when cleaning. Scrape off dry paint before washing.

Paint Recycling Program
Nova Scotia launched a paint-recycling program offering opportunities for businesses as well as residents to return leftover latex and oil-based paints to one of the province's Enviro-Depots® at no charge. The leftover paint will be recycled into new paint products. Acceptable paints include interior and exterior latex; alkyd, enamel and oil-based paints; interior and exterior varnishes and urethanes; primers, undercoats, block fillers and sealers; wood finishing oils and stains; porch, floor and deck paints; fence and barn paints; and the following paint aerosols - latex, alkyds and varathane. Anti-fouling paints (paints containing pesticides are not accepted). For more information, contact your local Enviro-Depot® or visit, www.rrfb.com.

References and Resources

We have used and referred to publications, fact sheets & web-sites from a number of sources to compile this fact sheet. We would like to acknowledge these companies, organizations, and agencies, and refer you to them and their websites/publications for additional information:

- **U.S. Environmental Protection Agency** - http://www.epa.gov/dfe/pubs/projects/auto/index.htm

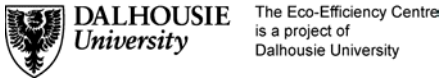
- **Washington State Department of Ecology** - http://www.ecy.wa.gov/pubs/92br12.pdf
- **Pollution Prevention in Coating Operations** - http://www.epa.state.oh.us/opp/paints/fact23.html

Telephone and Website Guide

Eco-Efficiency Centre
Tel - 902-461-6704
Website - www.dal.ca/eco-burnside
Atlantic Canada Opportunities Agency (ACOA)
Tel - 902-426-6743
Website - www.acoa-apeca.gc.ca/e/index.shtml
Atlantic Region, Environment Canada, P2
Tel - 902-426-7231
Website - www.atl.ec.gc.ca/epb/pollprev/
NS Dept of Environment and Labour
Tel - 902-424-5300
Website - www.gov.ns.ca/enla
NS Materials Exchange
Website - www.nsmaterials.com
RRFB Nova Scotia
Tel - 1-877-313-7732 (toll-free)
Website - www.rrfb.com
Directory of Solid Waste, Reuse, Recycling and Composting Contacts in Nova Scotia
http://www.gov.ns.ca/enla/emc/wasteman/contents.htm

For more information, contact:

The Eco-Efficiency Centre
Burnside Industrial Park
Dartmouth, NS B3B 1P9
902-461-6704 (telephone)
902-461-6703 (fax)
eecentre@dal.ca (email)
http://www.dal.ca/eco-burnside (website)



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