
Name of Organization: Environmental Defense

Type of Organization: Other

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Project Title: Eliminating mercury-based switches and PVC from automobiles

Project Category: Pollution Prevention and Reduction - BNS

Rank by Organization (if applicable): 0

Total Funding Requested (\$): 48,500 **Project Duration:** 1 Years

Abstract:

Mercury-based switches which activate trunk, hood, and glove compartment "convenience lighting" are commonly, but not universally, installed in new automobiles. Polyvinyl chloride (PVC) materials are primarily used in car interiors, wiring insulation, and as protective undercoats and sealers. Mercury-based switches, PVC, and new automobiles all are manufactured in the Great Lakes region. This project will expand the use of mercury-free switches and PVC-free materials in automobiles through pollution prevention by: 1) quantifying and publicizing the environmental and human health impacts of mercury-based switches and PVC at their production sites, and 2) using Clean Car Campaign network resources to seek domestic car manufacturer commitments to install only mercury-free switches and make cars that are substantially PVC-free.

Geographic Areas Affected by the Project

States:

<input checked="" type="checkbox"/> Illinois	<input checked="" type="checkbox"/> New York
<input checked="" type="checkbox"/> Indiana	<input type="checkbox"/> Pennsylvania
<input checked="" type="checkbox"/> Michigan	<input type="checkbox"/> Wisconsin
<input type="checkbox"/> Minnesota	<input checked="" type="checkbox"/> Ohio

Lakes:

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input type="checkbox"/> Michigan	<input type="checkbox"/> All Lakes

Geographic Initiatives:

<input checked="" type="checkbox"/> Greater Chicago	<input type="checkbox"/> NE Ohio	<input type="checkbox"/> NW Indiana	<input type="checkbox"/> SE Michigan	<input type="checkbox"/> Lake St. Clair
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Primary Affected Area of Concern:

Other Affected Areas of Concern:

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area:

Other Affected Biodiversity Investment Areas:

Problem Statement:

Mercury is a persistent and bioaccumulative toxic chemical whose uses the U.S. is seeking to reduce or eliminate as part of the US-Canada Great Lakes Binational Toxics Strategy. Because mercury is a "Level 1" chemical under the Binational Toxics Strategy, it is among the highest priority chemicals for reduction. Mercury currently only has a few uses in auto manufacturing, with a primary use in convenience lighting switches.

Approximately 100-200 lbs. of mercury is used in automobile convenience lighting (e.g., trunk, hood and glove compartment) switches per 100,000 vehicles produced. As a result, over 9,000 lbs. of mercury was used in the roughly 6.54 million automobiles produced in the Great Lakes region in 1996. This use of mercury can adversely impact workers in switch-making plants from direct exposure to the chemical and can harm the environment surrounding such plants via facility releases. When the automobiles are disposed of, mercury in the switches placed in new automobiles may enter the environment near salvage facilities since mercury-based switch recycling and recovery are inadequate.

Because mercury-free alternatives (e.g., metal ball bearings, electrical contact switches, slide switches, and pin switches) are in-use, for example, in General Motors' 1998 Cadillac and Buick lines and in 1997 and newer Jeeps and Chrysler minivans, it is clear that these "green technologies" are both available and viable. Although the three big domestic automakers have made some efforts to reduce their reliance on mercury-based switches, none of the companies has removed switches from all their vehicle lines. The best way to prevent any adverse environmental and human health impacts caused by mercury-based switches throughout a car's life-cycle - i.e., from production to disposal -- is to ensure that environmentally-friendlier alternatives are widely utilized by auto manufacturers.

Dioxins, a product of polyvinyl chloride (PVC) manufacturing and potentially from PVC incineration during disposal, also are a Level 1 class of chemicals under the Binational Toxics Strategy and a target for reduction or elimination. Use of environmentally-friendlier (i.e., fewer toxic impacts throughout the materials' life-cycle), alternative materials in automobile manufacturing instead of PVC, should result in a reduction in dioxin generation. Thermoplastic olefins for example, a probable alternative material to PVC for cars, do not create dioxins and have the potential to be 100% recyclable.

General Motors (GM) recently announced that it planned to eliminate PVC from car interiors by model year 2004, and Ford and DaimlerChrysler have eliminated PVC from instrument panel skins in select car models. GM's move is unprecedented in its scale, however, and likely to boost the market for "green" alternatives to PVC, and needs to be both expanded to apply to other PVC uses and followed by the other domestic automakers.

Proposed Work Outcome:

In order to quantify the environmental and human health impacts of mercury-based switches and PVC on cars, Environmental Defense's Pollution Prevention Alliance staff will research the "upstream" impacts and Great Lakes United (part of the Clean Car Campaign) will research the "downstream," or disposal-related, impacts. All upstream impacts will be associated with mercury-based switch and PVC production facilities. Current information shows that such facilities are located throughout the Great Lakes region, though each has fewer plants than the number of auto manufacturing sites in the region. Note that there do not appear to be mercury- or PVC-related impacts during car assembly or use, except during motor vehicle accidents.

Our data on upstream impacts will be limited by the information publicly available, e.g., from the Toxics Release Inventory, fish advisories, etc., as well as information volunteered by supplier and auto manufacturer companies via surveys and interviews. Simultaneous with this research on upstream impacts, we will study environmentally-friendlier alternatives to mercury-based switches and PVC, including their costs, applicability, and environmental trade-offs (if any).

After our technical staff have analyzed available data and quantified, to the extent allowed by the data, the upstream impacts, including the locations of toxic contamination associated with mercury-based switch and PVC manufacturing, our organization and others participating in the Clean Car Campaign (see discussion in the section on "Collaboration") will issue a report on these findings. At the time of issuance, we will publicize those automakers who are not using mercury-free switches and those who have not yet moved away from PVC use. Environmental Defense's next step will be to utilize the grassroots resources of the Campaign (Environmental Defense alone has over 300,000 members and an Internet-based action alert system that can reach over 100,000) to seek domestic auto manufacturers commitments in 2001 to switch to mercury-free switches and to be substantially PVC-free. We expect the automakers to become substantially PVC-free, rather than entirely PVC-free, as it may be difficult to find acceptable replacement materials for PVC wiring insulation in the near-term.

Strategies to ensure this commitment occurs in 2001 are likely to take several forms, including speaking to the media and decisionmakers on this issue, sending "fax-attacks" to corporate leaders, working with local organizations to get educational stories in local media and newsletters, helping to establish and carry out community-based dialogues on pollution prevention with mercury-based switch and PVC manufacturing facilities in the Great Lakes region, etc.

Project Milestones:	Dates:
Project Start	06/2000
Issue report on upstream impacts	09/2000
Publicize leading and lagging companies	09/2000
Domestic automakers make commitments	06/2001
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	/
	/
Project End	06/2001

Project Addresses Environmental Justice

If So, Description of How:

In its research on impacts from mercury-based convenience lighting switch production and PVC production, Environmental Defense's Pollution Prevention Alliance staff will seek out data on soil and fish contamination levels, as well as air and water toxic chemical concentration data, associated with these facilities. Should these data point to any disproportionate impacts among minority or low-income communities, we will publicize that result.

Project Addresses Education/Outreach

If So, Description of How:

The Clean Car Campaign is designed to, among other things, identify and activate potential buyers of clean cars. This is because Environmental Defense and other members of the Clean Car Campaign are trying to improve the environmental characteristics associated with product design, and automakers are heavily influenced by current and potential customers. Education of potential customers is a central component of the entire Campaign. The Campaign sends out email notices to those who have taken the Clean Car Pledge at least once monthly. We will use this email mechanism to send notices educating pledgers on mercury and PVC issues and this reduction project, as well as the related issue of extended producer responsibility (i.e., including product manufacturers accepting responsibility for supplier impacts).

Project Budget:

	Federal Share Requested (\$)	Applicant's Share (\$)
Personnel:	24,900	8,300
Fringe:	5,700	1,900
Travel:	0	0
Equipment:	0	0
Supplies:	0	0
Contracts:	0	0
Construction:	0	0
Other:	450	150
Total Direct Costs:	31,050	10,350
Indirect Costs:	17,450	5,800
Total:	48,500	16,150
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

The Joyce Foundation will provide 25% of the funding for this project, or \$16,150.

The Joyce Foundation has funded Environmental Defense's Pollution Prevention Alliance to perform activities that promote: product stewardship, shifts to cleaner production, and the "greening" of the auto industry. This project meets all those criteria.

Description of Collaboration/Community Based Support:

The Clean Car Campaign (www.cleancarcampaign.org), the umbrella organization of which Environmental Defense's Pollution Prevention Alliance is a part, is a coalition of organizations dedicated to promoting a progressive and profound transformation of the motor vehicle industry. The goal of the Campaign is for the industry to produce products that are many times "greener" than today's in their production, use, and end-of-life disposition. Coordinating organizations for the Campaign are: American Council for an Energy Efficient Economy (national), Ecology Center (Ann Arbor, MI), Environmental Defense (national, with the Pollution Prevention Alliance as its Great Lakes program), Great Lakes United (regional, Buffalo, NY), Michigan Environmental Council (Lansing, MI), Union of Concerned Scientists (national).

Environmental Defense and other members of the Clean Car Campaign will work with local organizations in Great Lakes communities that produce mercury-based switches and PVC who will support reductions in use of these products. Since many companies produce multiple types of switches, there should not be significant concerns about job losses in these communities because any lost sales likely can be replaced with sales of mercury-free switches. Environmental Defense technical staff also plan to research whether existing PVC manufacturing plants can produce alternative materials.