

# **Mercury-Switch Thermostat Collection and Recycling Plan**

Thermostat Recycling Corporation  
Arlington, Virginia

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## **I. Background and Purpose**

The Thermostat Recycling Corporation (TRC) has voluntarily collected and recycled mercury-switch thermostats since the program's inauguration in nine states in 1997. Today over 3,700 wholesalers, contractors, municipal HHW, and retailers in 48 states participate in the program. Since its inception TRC has diverted over 7,000 pounds of mercury from the solid waste stream.

Founded by Honeywell, White-Rodgers, and General Electric, TRC currently represents 17 manufacturers that historically distributed over 60 brands of mercury-switch thermostats.

On the behalf of its member companies and in accordance with state law, TRC submits the following plan for the collection and recycling of end-of-use mercury-switch thermostats.

## **Collection Program**

### **Member Manufacturers and Brands**

<b><u>Brand Holder</u></b>	<b><u>Brands</u></b>
Bard Manufacturing Corporation	Bard
Carrier Corporation	Carrier
	Bryant
	Totalline
	Fast
	Comfortmaker
	Heil
	Tempstar
	Arcoaire
	Keeprite
Chromalox	Chromalox
Crane Company	Crane
	National Radiator
Emerson Electric Corporation	White-Rodgers
	Liebert
Empire Comfort Systems	Empire
General Electric Corporation	General Electric
Honeywell Corporation	Honeywell
	Chronotherm
	Trol-a-temp
Invensys Controls	Invensys

	Robert Shaw
	Maple Chase
York/Johnson Controls	York
	Coleman
	Coleman Evcon
	Luxaire
	Fraser-Johnson
	Guardian
Lear Siegler (Original Charter Corporation)	Siegler
	Lear Siegler
	Home
	Holly
	Miller
Lennox International Inc.	Lennox
	Healthy Climate
Lux Products	Lux
	Lux Pro
	Pure Pro
	Filtrete
McQuay International	McQuay
	Perfex
	AAF
	SnyderGeneral
	Remington
	Herman Nelson
Nordyne Corporation	Westinghouse
	Maytag
	Frigidaire
	Tappan
	Kelvinator
	Philco
	Grandaire
	Gibson
	Miller
	Intertherm
PSG Controls, Inc	PSG
	Accustat
	Accutherm
	Accustat Energy Guard
Rheem Manufacturing Company	Rheem
	Ruud
	Protech
	WeatherKing
Sears Holdings	Sears

	Homart
Thomas & Betts Corporation	Reznor
	EK Campbell
	International Energy
TPI Corporation	TPI Corporation
	CEMCO (Columbus Electric Mfg.)
	Markel
	Raywall
Trane Residential Systems	Trane
	American Standard
W. W. Grainger	Dayton

**Program Description**

TRC is a national program and operates as a reverse distribution system. TRC provides recycling containers to participating facilities for a modest, one-time participation fee. The fee is currently \$25 per container. The recycling containers are reusable plastic bins that hold up to 100 waste mercury thermostats. Each container is clearly marked as a TRC container and also clearly indicates no products other than mercury-switch thermostats are to be placed into the container. Containers are bar-coded and assigned to each location. Each container is shipped with program guidelines, a plastic liner, twist ties for sealing the liner, zip ties for sealing the container, and a pre-paid universal waste shipping label for return shipment. Upon receipt of a container, the empty container is returned with guidelines, a new liner, zip and twist ties, and a pre-paid universal waste shipping label.

Additionally, TRC will accept mercury-switch thermostats through a pre-paid mail-back program in New Hampshire. Upon request, TRC will provide retailers and residents of New Hampshire a pre-paid UPS shipping label.

**Membership and Governance of TRC**

TRC is a 501c(6) organization incorporated for the purpose of managing end-of-use mercury-switch thermostats. Membership is open to manufacturers of mercury-switch thermostats. Manufacturer is defined as the brand owner of the thermostat.

Membership assessments are set by TRC board of directors. A one-time initiation fee is required of all new members. The fee is currently \$8,500. New members will pay their annual assessment beginning the first full year of their membership.

TRC is currently governed by a three person board of directors. Day to day operations are managed by TRC’s executive director. TRC management offices are located in Arlington, Virginia.

## **Eligible Participants**

The following entities are eligible to participate in TRC as collection locations.

**Heating and Air Conditioning (HVAC) Wholesale Distributors:** Any wholesaler of heating, air conditioning, electrical, or plumbing products and accessories, having an established place of business in the United States and selling to dealer-contractors for resale.

**Contractors:** Any independent business that services/maintains heating, air conditioning, electrical or plumbing systems that has seven (7) or more service technicians or services a rural area (the primary place of business is located in a county outside a metropolitan statistical area).

**Household Hazardous Waste (HHW) Collection Sites:** Any approved municipal/county HHW, waste, solid waste or universal waste location.

**Retail:** Any business establishment that directly sells residential controls (thermostats) to consumers.

## **Enrolling in the Program**

TRC screens all applicants to the program and requires a completed participation form/agreement prior to shipment of a recycling container(s). Participation forms will be available in .PDF form on TRC website ([www.thermostat-recycle.org](http://www.thermostat-recycle.org)) and are also available upon request by calling TRC toll free line at 1-800-238-8192. Fees are payable by check or credit card with the completed application. TRC will also accept purchase orders and issue invoices when required by the purchasing authority. Participant fees are not refundable.

TRC currently charges a nominal fee to participate in the program. The fee is based on the number of containers ordered. The fee covers TRC's cost for the container and the initial shipping. TRC assumes all recurring costs to ship and process mercury switch thermostats.

Orders for bins are received and processed within 72 hours at TRC's fulfillment/processing center located in Golden Valley, Minnesota. A unique identifying number is assigned to each bin and that number is assigned to the establishment that ordered the bin.

## **Collection Location Compliance with Universal Waste Rule**

TRC recycling bins are made of durable plastic with folding, interlocking lids. Each bin is shipped with a 5 mil plastic liner to contain mercury in the event of a leak during storage or transport. Twist ties are provided with each bin to close and seal the liner prior to shipment. Additional plastic zip ties are also provided to secure the lid for

transport. Participants are requested to ship the containers to TRC at least once in a calendar year.

The greatest risk to the program is the storage or transport of leaking or ineligible products. TRC *only* collects glass tube mercury-switch thermostats. The thermostat must be whole, with the cover attached. Specifically TRC will not accept any liquid mercury, batteries, fluorescent lamps, mercury fever thermometers, or any other controls/devices containing mercury. Additionally, TRC does not accept any other products (electronic thermostats or non-mercury mechanical wall mounted thermostats).

TRC will not accept, under any circumstances, leaking product or loose ampoules. Participants are instructed to contact their local hazardous waste program or state environmental agency for instructions on proper handling and disposal of leaking products.

These are the national policies of TRC and have been established to manage risk for all program participants. These policies also ensure compliance with all applicable federal and state universal waste collection, storage, and shipping regulations.

TRC documents, including digital photographs, all instances of non-compliance.

In the event of non-compliance TRC provides a written warning to the offending location.. TRC informs the offending participant by taking the following steps.

1. A warning notice is included in the return bin informing the location that the condition and/or contents of the bin were unacceptable.
2. A letter is mailed to the contact at the participating location informing them of non-compliance and subsequent violations may result in the termination of the location's participation in the program. The appropriate contact at NH Department of Environmental Services will be copied on the letter.
3. Generally program staff will also attempt to contact the location via phone or email to educate staff regarding compliance and the risks associated with non-compliance to all parties.

### **Management and Processing of Waste Thermostats**

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell, Inc. on contract with TRC.

Bins are received at the loading dock and sent to TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted and tallied. The following data is recorded for each bin returned and processed: bin number, business name, city, state, zip code, date returned, number of thermostats and bulbs by manufacturer and any non-conforming material.

The bin is returned to the business that sent it in with a new prepaid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area to for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to TRC processing area to have the mercury bulbs removed from the plastic housing. (Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement.) Small quantities of thermostats are removed from the container, which is then closed again, and placed at the bulb removal workstation on a tray that contains any potential mercury spillage. The bulbs are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a bulb breaks and mercury spills, the work area is designed to contain the spillage and the operators are trained in the clean up and disposal of mercury. The TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury ampoules (bulbs). Bethlehem Apparatus meets or exceeds all local, state, federal and EPA regulations for the management of the product Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- EPA BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling Hazardous Waste and Universal Waste.

### **Mail Back Program**

TRC will provide a pre-paid UPS shipping label upon request to residents of New Hampshire. TRC will accept requests for pre-paid shipping labels through email or by

calling toll-free at 888-266-0550. Within two weeks of the request TRC will mail a pre-paid UPS label and instruction sheet for preparing thermostats for shipment.

Information on the mail back program will be posted on the TRC website at [www.thermostat-recycle.org](http://www.thermostat-recycle.org). TRC will begin accepting requests for pre-paid shipping labels from New Hampshire residents January 1, 2009.

The following instructions will be providing to NH residents requesting pre-paid mailing labels.

## **FOLLOW THIS SIMPLE PROCESS TO SHIP YOUR END-OF-USE MERCURY CONTAINING THERMOSTATS TO THERMOSTAT RECYCLING CORPORATION**

***The Thermostat must be intact, complete with cover with brand name visible. DO NOT remove and ship mercury ampoules. DO NOT ship thermostat if mercury ampoules are broken or leaking.***

***TRC ONLY ACCEPTS MERCURY-CONTAINING THERMOSTATS. DO NOT SHIP ANY OTHER MERCURY CONTAINING PRODUCTS SUCH AS THERMOMETERS OR FLOURSECENT LAMPS!***

1. Place thermostat(s) into a zipper-locked bag and insert in a box or padded envelope and **securely** pack.
2. Clearly print return name, address and phone number on prepaid UPS mailing label provided by TRC.
3. Place the mailing label on the package, and drop off at nearest UPS location.
4. For location of UPS drop-off or to arrange for pickup by UPS, call UPS at 1-800-PICK-UPS (800-742-5877) or visit [www.ups.com/dropoff](http://www.ups.com/dropoff).
5. Homeowners wishing to ship mercury-containing thermostats without a prepaid label may send them to: Thermostat Recycling Corporation, Dock 4, 6801 Sandburg Road, Golden Valley, Minnesota 55427

**THE U.S. POSTAL SERVICE PROHIBITS MERCURY-CONTAINING PRODUCTS IN U.S. MAIL. IF YOU ELECT TO SHIP WITHOUT PREPAID LABEL CHECK WITH YOUR SHIPPER PRIOR TO SHIPPING.**

\* TRC only accepts thermostats via pre-paid mail back program from residents of New Hampshire and Maine. We strongly encourage residents of other states to properly dispose mercury-containing thermostats at local hazardous collection centers or other TRC collection locations. To find a location near you, visit [www.thermostat-recycle.org](http://www.thermostat-recycle.org).

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**New Hampshire Revised Mercury-Switch Collection and Recycling Plan**

## **Outreach Activities**

Approximately 90% percent of residential controls in 2006 were distributed through wholesale outlets. Only 7% were sold at retail outlets with the remaining 3% online or catalog. As such the contractor/wholesaler segment will be the focus of TRC outreach campaign.

The primary goal of education/outreach plan is to raise HVAC contractors' (technicians) and wholesalers' awareness of the TRC mercury-switch thermostat take-back program. Secondary goals include raising awareness of these stakeholders' legal obligations to properly manage of end-of-use mercury-switch thermostats and the ease in which they can access the TRC program.

Key messages include how easy and convenient it is to participate in the TRC; it's the law; and it's provided at no cost by manufacturers.

TRC will also seek to raise awareness among homeowners about mercury-switch thermostats and recycling options available to them. The TRC homeowner retail program is geared to the small set of DIYer's that replace their own thermostat or those that stored end-of-use mercury thermostats in the absence of a take-back program.

### **Details of Outreach Activities**

*Web-based tools*—Information on TRC, how to participate, and state specific activities will be available at [www.thermostat-recycle.org](http://www.thermostat-recycle.org). TRC is updating the program's website. The new site will focus on communicating how to participate in the program, the proper management and transport of end-of-life mercury-switch thermostats, and identifying locations where contractors and homeowners can recycle end-of-use mercury thermostats.

A utility where contractors and homeowners can look up the nearest drop-off location by zip code is under development. TRC will also provide its database of locations to Earth911.com for inclusion in its database.

The site will be search engine optimized for popular search engines such as Google, Yahoo, and MSN.

States with specific statutory requirements will have their own page on the website. The state pages will be one click from the primary navigation page. State specific information will include information on requesting additional coupons, retail participation, and a FAQ on the program. Information in response to specific state statutory requirements will be posted on the site by statutory deadlines in each state.

*State Advertising*—Print advertising will not be used for the state-wide campaign. It was ineffective in Maine and did not yield any measurable increase in the collection rate. TRC will conduct targeted web-based advertising in the fall (September and October prior to heating season) to raise awareness among homeowners. Banner advertising will 1) raise awareness of the need to recycle and 2) drive traffic to [www.thermostat-recycle.org](http://www.thermostat-recycle.org) for local recycling options. TRC will place banner advertisements in the *Concord Monitor*, *Manchester Union Leader*, and *Berlin Daily Sun*.

*Earned Media*—The thermostat outreach campaign is different than a traditional branding campaign. “Getting contractors to do the right thing” is the crux of the campaign. Building awareness of the program among stakeholders is critical. Contractors must understand that the proper management of mercury thermostats is no different than their other environmental responsibilities (e.g. refrigerant) and that an easy, no-cost program is available.

For homeowners, recycling a thermostat is likely a one time event (unlike other consumer products such as bottles or mercury containing lamps). In this instance the goal is inform consumers of the need to properly dispose end-of-use mercury thermostats and convenient options for doing so.

In 2009 the TRC will increase its outreach to national trade press such as *Waste Age*, *Contracting Business* and the house publications of the heating and air conditioning trade groups to build awareness of TRC program nationally. Outreach will include direct editorial contact and press releases.

State level efforts in New Hampshire will focus on earned media among various stakeholder groups such as Oil Heat Council of New Hampshire, residential building and remodeling trade groups, New Hampshire Plumbing and Mechanical Contractors, New Hampshire Municipal Association, New England Chapter of the American Public Works Association among others. TRC will provide “news stories” for inclusion in their newsletters and for posting on their websites.

TRC also suggests launching the campaign with a press conference in New Hampshire coordinated with the Department of Environmental Services that earns free media in radio, television, and newspapers.

*Direct Mail*—The New Hampshire Department of Safety licenses gas fitters and also coordinating the voluntary certification of heating technicians. The TRC requests assistance from the Department of Environmental Services regarding access to mailing lists for gas fitters and heating technicians. If the Department of Safety provides mailing lists (TRC emails/calls to program staff received no response).The TRC will print and mail a postcard in the spring and fall to representatives of the trades informing them of the TRC program and contractors’ legal requirements to properly manage end-of-use mercury-switch thermostats.

*Print Materials*—TRC will print and distribute a 6x7½” cling sticker to be used by wholesalers and retailers to promote mercury thermostat recycling at their location. The cling sticker will be mailed to existing locations in January 2009. The cling will be included with the bin for new locations starting in January 2009 as well. A copy of the art is included in the appendix.

# Appendix

## Retail Participation Agreement

<b>THERMOSTAT RECYCLING CORPORATION RETAIL PROGRAM PARTICIPATION AGREEMENT</b>
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To participate in TRC, the retailer and, where appropriate, individual store location (collectively referred to herein as “Retailer”) must sign this Participation Agreement and fax to Executive Director, Thermostat Recycling Corporation, 703-841-3346.

- ◆ The Retailer agrees to keep the collection bin in an area not accessible by the public in order to promote safe handling of all mercury-containing thermostats.
- ◆ The Retailer agrees to place only mercury-containing thermostats into the collection bin and to recycle the entire mercury-containing thermostat. The Retailer will not attempt to clip mercury ampoules (switches) from the thermostat and will not accept loose mercury ampoules from customers.
- ◆ The Retailer agrees not to ship any product that is not a mercury thermostat.
- ◆ The Retailer agrees that collection bin will be readied for shipment and shipped back to TRC per instructions provided with the collection bin. The collection bin should be shipped at least once per calendar year.

**Retailer agrees to indemnify and hold harmless the Thermostat Recycling Corporation (TRC), its directors, officers, members, employees, agents, successors and assigns of and from any and all causes of action, costs, claims, orders, demands, judgments and liabilities of any kind or nature, arising out of or in any way connected with 1) the Retailer’s collection, handling, storage, management, packaging and presentation for shipment of mercury-containing thermostats, and 2) shipment of anything other than an eligible mercury-containing thermostats.**

I have reviewed, understand, and will adhere to these policies and procedures.

\_\_\_\_\_  
Retailer

\_\_\_\_\_  
Store Name

\_\_\_\_\_  
Mailing Address

\_\_\_\_\_  
Physical Address

City/Town

State

Zip

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
E-mail Address

\_\_\_\_\_  
Store Website (if applicable)

\_\_\_\_\_  
Signature Store Manager

\_\_\_\_\_  
Store Manager's name (Please print)

\_\_\_\_\_  
Date

**PLEASE READ - COMPLETE – SIGN AND FAX TO: Executive Director,  
Thermostat Recycling Corporation, 703.841.3346**

**NOTE: This form must be completed and faxed to the number above to participate in the program.**

(Page 2 of 2)

## Window “Cling” Sticker

# DROP-OFF POINT



# RECYCLE

Mercury-Containing  
Thermostats Here



**Thermostat  
Recycling  
Corporation**



State of Oregon  
Department of  
Environmental  
Quality

