



## **Environment and Health NGOs' comments on the Working document for a directive relating to restrictions on the marketing of certain measuring devices containing mercury.**

**Brussels 3/6/2005**

In January 2005, the Commission adopted and presented a Communication on the Community Strategy Concerning Mercury, proposing several actions in view of reducing mercury emissions, supply and demand. One of the actions, action 7 is targeting non-electrical and non-electronic measuring and control equipment containing mercury, which are not covered by directive 2002/95/EC<sup>1</sup>. To that end the Commission is now proposing an amendment to directive 76/769/EEC to tackle this issue.

These devices can pose a risk to human health and the environment during usage because they are easily broken, and after usage because they end up in the waste stream. Fever thermometers and other measuring devices found in residential settings, healthcare facilities, laboratories and schools are of particular concern because of the potential exposure to young children, women of childbearing age and babies in the womb, especially in specific work environments (e.g. nurses in hospitals, laboratory workers, dental assistant). There is increasing evidence that inhalation can be a source of significant mercury exposure<sup>2</sup>. This potential for exposure often results in substantial cleanup expenditures and disruptions from temporary school closures when product breakage occurs. In addition, mercury-containing devices are often improperly disposed of at end of life, resulting in mercury emissions from trash and medical waste incinerators and landfills.

The NGOs fully agree with the Commission that substituting mercury in these product categories and moreover in an expanded list of product categories is the only effective way of addressing inevitable emissions from their use and disposal. Earlier NGOs Comments in May 2004 also referred to this issue. However several aspects still need to be addressed concerning how we believe these issues should be tackled.

### *Legal approach*

Mandatory measures are essential to offer the greatest protection and have been widely used by the Commission in a number of instances to address the marketing and use of hazardous chemicals in products. Until now restrictions on the use of hazardous substances in products are based on Article 95 of the Treaty establishing the European Communities, having as their objective the establishment and functioning of the internal market.(e.g. 76/769, 2002/95). However, restrictions in products have also been addressed on the basis of Article 175 of the Treaty with the object of protecting the environment (e.g. 2000/53).

<sup>1</sup> Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restrictions of the use of certain hazardous substances in electrical and electronic equipment (RoHS), OJ L37, 13.2.2003

<sup>2</sup> A. Carpi and YF Chen. Gaseous Elemental Mercury as an Indoor Air Pollutant. Environ. Sci. Technol., Vol 35:4170-4173 (2001).

In the above-mentioned directives, 2002/95 and 2000/53, the restriction of use of certain hazardous substances in products is conducted via a general restriction, with some exemptions in the case where no alternatives exist. This model has already been used and can be significantly more effective than the one currently proposed by the working document, proposing that new fever thermometers and other mercury containing measuring devices intended solely for consumer use (e.g. manometers, barometers, sphygmomanometers) should not be placed on the market.

For all intended uses of mercury in products, including measuring devices and control instruments, the EU would be better served by identifying those mercury uses in products it intends to allow instead of attempting to identify and restrict all potentially unnecessary and/or harmful product uses. In fact, it can be argued that all mercury uses are likely to be harmful because once placed into commerce this toxic material is eventually released into the environment, either through haphazard release or recycled into another product where the mercury is then released.

Manufacturers have been extraordinarily creative in finding unsuitable mercury applications; therefore the EU should not place itself in the position of trying to anticipate every possible use and then undertaking regulatory action to restrict that use. Instead, the EU should start with the proposition that mercury use in products is generally unsafe and unnecessary. Any manufacturer who still wants to use the toxic chemical – in cases where there is no alternative – should then be required to apply for special permission. The burden of proof should rest with manufacturers. They should be obliged to show that their proposed use of mercury is controlled, effective, and necessary because of the lack of available alternatives and that the manufacturer has provided for an effective program for collection of the product at end-of-life.

Given how long the mercury problem has been known, particularly in Europe, we are hard pressed to believe that manufacturers who would undertake actions voluntarily to remove mercury from their products have not already done so. Accordingly, we believe regulation will be required to purge the remaining mercury measuring instruments and devices from the marketplace, in a similar manner to recent actions on electronic products under the Waste Electrical and Electronic directive<sup>3</sup>.

There are several reasons why such an approach should be followed:

1. This model of legislation has been used in the recent past and is now effectively in operation.
2. The explanatory memorandum of the proposed directive suggests that the products should be divided into the ones for consumer use and the ones for professional use. As mentioned in the Extended Impact Assessment(ExIA), with reference to the professionally used equipment, while the mercury content per item can be quite high, the numbers are rather limited<sup>4</sup>. Therefore these applications should be relatively easy to identify, list and if no alternatives exist, exempt for a limited period.
3. Furthermore, it is clearly mentioned in the ExIA that individual Member states have already taken action in banning or restricting the use of such products containing mercury. Countries such as Denmark, France, the Netherlands, Sweden and Norway have done so with several exemptions for specialized professional uses where adequate alternatives do not yet exist. As a result, if a model like the RoHS directive is embraced, the

---

<sup>3</sup> [http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/L\\_037/L\\_03720030213en00240038.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/L_037/L_03720030213en00240038.pdf)

<sup>4</sup> SEC(2005)101, Extended Impact Assessment, annex to the Community Strategy on Mercury, p. 35

potential exemptions to be addressed at European level are mostly identified, and would not cause a further delay in the process.

4. The experiences of Sweden and Denmark where such restrictions have been in place for many years; the experience of the United States where mercury fever thermometers are essentially unavailable due to voluntary phase outs by most pharmacies and laws prohibiting sales by many states and local governments<sup>5</sup>; and detailed studies comparing the cost and functionality of mercury and non-mercury products all demonstrate the feasibility and the wisdom of halting the sales of most mercury-containing measuring devices and instruments<sup>6</sup>. The scope of the restrictions should be dictated by the availability of alternatives, as documented in these studies and would also contribute to fulfilling another of the Mercury Strategy goals to reduce the overall demand for mercury.

Since some measuring devices and instruments are employed for medical purposes, such as blood pressure cuffs, we fully understand and appreciate the need to proceed carefully in public health matters. However, we submit the track record of medical institutions which have made the transition to non-mercury equipment. We also submit the detailed "how to" instructions readily available in the public domain which indicate the obstacles to this transition are more a matter of education and training than the availability and functionality of non-mercury equipment<sup>7</sup>.

5. During the consultation process, several of the Member states and other representatives actually requested a general ban with exemptions, such as Denmark, Sweden, France, the Netherlands, Flemish Community, and OVAM (Public Waste Agency of Flanders).
6. The requests for exemptions to a general ban will also serve to better identify the uses of mercury, even in highly specialized applications, and considering that the dangers have already been identified, could trigger further research and development for their replacement with adequate alternatives.
7. Furthermore, this approach would fall in line with the European Parliament resolution on the European Environment & Health Action Plan 2004-2010 (2004/2132(INI))<sup>8</sup> - Article 6, which considers that, without prejudice to existing Community legislation and following the opinion of the relevant Scientific Committee, urgent consideration should be given to restricting the marketing and/or the use of mercury used in dental amalgams and in non-electrical or non-electronic measuring and monitoring devices, amongst other substances listed, to which newborn babies, children, pregnant women, elderly persons, workers and other high-risk sections of

---

<sup>5</sup> See [www.noharm.org/mercury/mercuryFree](http://www.noharm.org/mercury/mercuryFree) for a list of pharmacies no longer selling mercury fever thermometers and [www.noharm.org/mercury/ordinances](http://www.noharm.org/mercury/ordinances) for a list of laws prohibiting mercury fever thermometer sales in the United States.

<sup>6</sup> See a detailed comparison of mercury and non-mercury measuring devices and instruments performed for the Maine Department of Environmental Protection at [www.maine.gov/dep/mercury/lcspfinal.pdf](http://www.maine.gov/dep/mercury/lcspfinal.pdf) and the proposed strategy based on that report at [www.maine.gov/dep/mercury/productsweb.pdf](http://www.maine.gov/dep/mercury/productsweb.pdf). Following the submission of this strategy, the Maine Legislature enacted a prohibition on the sale of most mercury measuring devices and instruments effective July 2006. Appendix B to the report contains some examples of substantial cleanup expenditures resulting from measuring instrument breakage.

<sup>7</sup> See [www.sustainablehospitals.org](http://www.sustainablehospitals.org), [www.inform.org](http://www.inform.org), and [www.h2e-online.org](http://www.h2e-online.org) for detailed information regarding non-mercury alternatives in the health-care setting.

<sup>8</sup> <http://www2.europarl.eu.int/omk/sipade2?PUBREF=-//EP//TEXT+TA+P6-TA-2005-0045+0+DOC+XML+V0//EN&LEVEL=3&NAV=X>

the population are heavily exposed, as safer alternatives become available.

### Scope

The scope proposed in the working document is too narrow and much more limited than the one proposed in action 7 of the EU Strategy on mercury –“*The Commission intends to propose in 2005 an amendment to Directive 76/769/EEC<sup>9</sup> to restrict the marketing for consumer use and healthcare of non-electrical or electronic measuring and control equipment containing mercury.*”

Clearly, this proposed action does not restrict its scope to only those measuring and control devices intended for consumer use, as primarily proposed in the working document. As a result, the scope proposed in the Working document will not achieve the possible reductions in mercury contamination from measuring and control devices that are both necessary and achievable. Therefore, the following observations need to be taken on board:

- A. The proposed directive is only focused on fever thermometers and manometers, barometers and sphygmomanometers for consumer use only. However, other categories of products exist, some for consumer uses and others for professional uses, which are not currently covered by the proposed directive(or any existing Directive), but for which alternatives exist. To name a few:
  1. Temperature Measurement and Sensing Devices (which includes, for instance, non-fever thermometers; hygrometers and psychrometers)
  2. Gastrointestinal Tubes (such as Esophageal Dilators (Bougies))
  3. Pressure Gauges and Flow Rate Devices (which include not only barometers, but also mercury devices in flow meters, mercury diffusion pumps, and fume exhaust ventilation hoods)

The above list as well as the longer list attached are not exhaustive but provide an indication of the wide range of products which should further be considered for inclusion. (Please see list in annex).

Devices in the above categories have been extensively analysed, alternatives have been identified and costs have been examined and shown comparable<sup>10,11</sup>. There are non-mercury alternatives which are commercially available for practically all sub-categories of all common applications<sup>5,6,7,12,13,14</sup>. This has enabled a near phase-out of mercury use in measuring and control equipment in some countries. When the costs of alternatives are not comparable, the alternatives often outperform the mercury-containing devices in terms of longevity and faster performance

---

<sup>9</sup> Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations, OJ L 262, 27.9.76.

<sup>10</sup> An Investigation of Alternatives to Mercury Containing Products, Lowell Centre for Sustainable Production, 22 January 2003, available at <http://mainegov-images.informe.org/dep/mercury/lcspfinal.pdf> (see footnote 5).

<sup>11</sup> Mercury Products Guide: The Hidden Dangers of Mercury - A Resource Guide for Procurement Officers and Consumers about Mercury in Products and their Alternatives, Todd Kuiken and Felice Stadler, National Wildlife Federation, Ann Arbor, Michigan, August 2002.

<sup>12</sup> Nordic Council of Ministers, “Mercury – a global pollutant requiring global initiatives”, Copenhagen 2002

<sup>13</sup> Global Mercury Assessment, UNEP, December 2002, p.141

<sup>14</sup> <http://www.informinc.org/fsmercaltts.pdf> and <http://www.informinc.org/fsmerchealth.pdf>

(eg. digital electronic thermometers). Moreover, the costs for alternatives decrease once the alternatives become commonly used.

- B. Furthermore, apart from the product categories as such, the scope should be widened to cover both consumer and professional products. The feasibility of including professional devices is proven by such countries as Norway<sup>15</sup>, Sweden<sup>16,17</sup>, Denmark, the Netherlands and France<sup>18</sup>, which have national restrictions on mercury use in measuring devices. Additional restrictions exist in individual cities such as in Vienna, Austria, the Vienna Hospital Association and Styrian Hospital Association<sup>19</sup> which do not use thermometers and sphygmometers containing mercury. The UK Department of Health also recommends considering mercury-free products for certain applications used in health care facilities.<sup>20</sup>

The phase-out in Sweden should also be considered<sup>21</sup>:

"Since 1 January 1992 thermometers and other measuring instruments containing mercury may not be manufactured, sold, imported from third countries or exported from Sweden. When the ban was introduced only a few exemptions were needed for industry and healthcare. The Swedish experience is that the change-over to mercury free alternatives have not met any significant problems but have been relatively easy, technically as well as economically. This experience applies also to other mercury containing products, which already are restricted on a national level. This has resulted in a reduction of total mercury supply to the Swedish society from over 9 tonnes 1991 to 340 kg in 2003.

In healthcare a switch to mercury free pressure instruments was noted in 1991. Today there is only one exemption (time-limited) in Sweden, namely the *strain-gauges* which are used for specific blood vessel examinations and in research. Testing of mercury free alternatives is ongoing and seems to be able to substitute the major part of the use in the near future. For blood pressure gauges (*sphygmomanometers*), used in ordinary blood pressure examinations, there is no need for exemptions.

In industry and research, the need for exemptions for measuring instruments and devices is limited and could relatively easily be identified based on the national legislations already in place and experiences in these countries. In Sweden there are only a few valid exemptions for spare parts left and four dispensations in individual cases corresponding to approximately 22 kg mercury per year.

In response to a Government commission, the Swedish Chemicals Inspectorate last year proposed a general national ban for the

---

<sup>15</sup> <http://europa.eu.int/comm/environment/chemicals/mercury/pdf/norway.pdf>

<sup>16</sup> <http://europa.eu.int/comm/environment/chemicals/mercury/pdf/sweden.pdf>

<sup>17</sup> <http://www.eeb.org/activities/mercury/Petra%20Hagstrom%20presentation%20Hg%20Madrid%2042205.pdf>

<sup>18</sup> French response to Consultation document Development of an EU Mercury Strategy Invitation to Comment, [http://europa.eu.int/comm/environment/chemicals/mercury/pdf/france\\_en.pdf](http://europa.eu.int/comm/environment/chemicals/mercury/pdf/france_en.pdf)

<sup>19</sup> [http://www.cleanmed.org/europe/2004/english/docs/press/press\\_vienna\\_declaration.pdf](http://www.cleanmed.org/europe/2004/english/docs/press/press_vienna_declaration.pdf)

<sup>20</sup> Blood Pressure Measurement Devices – Mercury and Non-mercury, Medical Devices Agency, July 2000, UK

<sup>21</sup> Extracts from the Swedish Comments on the draft proposal for restrictions on the marketing of certain measuring devices containing mercury (amendment of Council directive 76/769), 2<sup>nd</sup> June 2005

handling, import and export of mercury, including for example dental amalgam and analytical chemicals.”

- C. The existing situation, in which some EU countries and cities have adopted restrictions and others have not, and where some have included professional devices and others not, has created a patchwork of regulations that disrupts the smooth functioning of the economy and begs for a harmonised regulatory approach.
- D. Moreover, professional uses of mercury devices still release quantities of mercury erroneously into global circulation, despite established safety control and waste management procedures. For example, a hospital in the Czech Republic purchased approximately 1,500 new mercury thermometers to replace lost and broken ones, but declared no mercury waste in their annual waste report. This indicates that the mercury from those broken thermometers ended up in other waste streams<sup>22</sup>.
- E. Not only newly sold thermometers and other measuring devices should be covered, but provision should be made for those in use and sold second-hand. The success of collecting mercury fever thermometers through voluntary exchanges in the United States points to the potential advantages to public health and the environment through hosting mercury collections.
- F. In a similar way, and within the same framework a restriction of the use of mercury in dental amalgams should be considered, given that viable non-mercury alternatives exist.
- G. Mercury use in laboratories and in schools should also be banned, considering the many accidents which occur, ending up in many persons being exposed, lengthy schools closures<sup>23</sup>, and high clean up costs<sup>24,25</sup>.
- H. Export of such products from the EU should also be forbidden, otherwise the EU will just be transporting the problem elsewhere, contributing to the global pollution from mercury.
- I. A proposal for a directive covering non-electrical and non-electronic devices should also in principle lay the ground for the gradual collection and safe storage of the existing supply of mercury devices in households, healthcare and other professional facilities. Mercury waste should be temporarily stored awaiting the final decisions about environmentally sound deposition. The entities responsible for the collection should be clearly identified.

---

<sup>22</sup> Comments on the Consultation Document: Development of an EU Mercury Strategy from 15 March 2004. Health Care Without Harm Europe

<sup>23</sup> <http://www.woodtv.com/Global/story.asp?S=3388007&nav=0RceaFrn>

<sup>24</sup> <http://sustainableproduction.org/downloads/Mercury%20Spills.pdf>

<sup>25</sup> <http://www.mercuryinschools.uwex.edu/schools/why.htm>

Finally, actions related to mercury measuring devices and instruments are necessary because of their significant use within the EU and worldwide. The estimated 166 tons of annual mercury consumption in measuring and control devices represents a tremendous opportunity for lowering worldwide mercury demand. Most of this mercury is eventually released and becomes part of the global mercury burden, given the propensity for this equipment to break and the mercury to be released in waste storage, landfills and incinerators. Moreover, the manufacturing of these products, such as fever thermometers in India, is a known source of substantial local mercury contamination<sup>26</sup>.

In conclusion, we fully agree that, as the presented Working Document states, "the negative impact on producers has to be balanced against the avoided costs of removing mercury in waste management and of dealing with the [negative health] impact of emissions". Recent studies indicate that adverse effects of mercury pollution occur at all levels and there is no threshold below which adverse effects of mercury pollution do not occur. Moreover all mercury-containing measuring and control devices pose a danger of mercury release. Given these realities, the economic impact of a directive ordering a general ban, with wider scope and more comprehensive provisions, will still be economically preferable to what would result under the Working Document's current proposal.

***For more information please contact:***

Elena Lymberidi, EEB, [www.eeb.org](http://www.eeb.org), [mercury@eeb.org](mailto:mercury@eeb.org), T: +32 2 2891301

Genon K. Jensen, EPHA Environment Network (EEN), [www.env-health.org](http://www.env-health.org), [genon@env-health.org](mailto:genon@env-health.org), T: +32 2 2333875;

Karolina Ruzickova, Health Care Without Harm Europe, [www.noharm.org](http://www.noharm.org), [europe@hcwh.org](mailto:europe@hcwh.org), T: +420 222 78 28 08

Michael Bender, Ban Mercury Working Group, [www.ban.org/Ban-Hg-Wg/Mercurypolicy@aol.com](http://www.ban.org/Ban-Hg-Wg/Mercurypolicy@aol.com), T: +1 802 2239000

---

<sup>26</sup> Mercury in India: Toxic Pathways, Toxics Link, September 2003, p. 25.

**ANNEX**

**MEASURING & CONTROL DEVICES CONTAINING MERCURY  
(Non-electronic and non-electric)  
Professional and Consumer Uses**

ITEM	DESCRIPTION
<b>TEMPERATURE MEASUREMENT &amp; SENSING DEVICES</b>	
Body temperature thermometers	Fever measurement: home, commercial, scientific
Clerget sugar test thermometers	
Heating & Cooling system thermometers	
Incubator / Water Bath thermometers	
Minimum / Maximum thermometers	Home, commercial, scientific
Calibration Thermometers	
Tapered bulb (armored) thermometers	
Other specialty use thermometers: blood bank, dairy, etc.	
Maximum registering thermometers	
ASTM & Laboratory thermometers	
Cup case thermometer	For tank sample testing
Oven thermometers	Home and commercial
Psychrometers, including Sling psychrometer	Measures moisture content of air or any gas and  for measuring relative humidity. Psychrometers and hygrometers typically contain two thermometers, a "dry bulb," or ordinary thermometer, and a "wet bulb" thermometer, which has a bulb that is kept constantly wet. Humidity is computed from the difference in the temperatures shown by the two thermometers, each of which contain mercury.
Hygrometers, including Mason's hygrometer	Measures moisture content of air or any gas  Stationary, for measuring relative humidity
Candy and deep fry thermometers	Home and commercial
Weather thermometers	Home, commercial and scientific
Pyrometers	Measures temperature of extremely hot materials
Mercury Flame Sensor /gas safety valve (stainless steel bulb, capillary tube, and bellows/control device)	Used for 'unsupervised burners' in certain gas fired devices with standing pilot or electronic ignition pilot, e.g., residential and commercial ovens/ranges, commercial griddle with concealed pilot, unit heaters, some light

	industrial oven applications, furnaces, infrared heaters, 'cycle pilot' devices (Robert Shaw and Harper-Wyman produce devices primarily for residential and commercial appliances, White Rodgers produces devices for 'furnace' applications.)
Mercury thermostat sensors (w/stainless steel capillary tube)	used in gas ovens operating up to 750°F. Not used in self-cleaning ovens, discontinued in 1970's. Currently produced devices use oil or sodium-potassium mixture.
Hydrometers	Measures density or specific gravity of a liquid. Mercury is used in hydrometers as a weight. It is encased in a thin glass tube with a bulb at one end. The tube is sealed and floats upright in the sample liquid like a fishing bobber. Hydrometers sometimes contain a thermometer for measuring the temperature of liquids. These are called thermohydrometers and may contain additional mercury in the thermometer.
<b>SPHYGMOMANOMETERS</b>	A type of mercury manometer that is used for measuring blood pressure. Sphygmomanometers measure both maximum arterial pressure, when the heart beats and sends blood through the arteries, and minimum pressure, when the heart relaxes and fills with blood again. Mercury is contained inside a plastic or glass tube.
<b>GASTROINTESTINAL TUBES</b>	
Esophageal dilators (Bougie tube)	Weighted tubes passed down the esophagus to dilate a narrowed area
Feeding tubes	
Miller Abbott tubes	Used to treat intestinal obstructions
Cantor tubes	Used to treat intestinal obstructions
<b>PRESSURE GAUGES &amp; FLOW RATE DEVICES</b>	Tube type and well type devices, with many applications in the natural gas sector
Barometers	Measure atmospheric pressure (well type, climatology/ meteorology uses). Mercury barometers contain elemental mercury exposed to air in a thin glass column. The mercury rises and falls with changes in atmospheric pressure.
Vacuum Gauges	
Flow Meters	Measures flow of gas, water, air and steam: water treatment, sewage plants, power

	<p>stations, other industries.</p> <p>Used in boiler panels to measure vapor pressure, used in model "Ledoux bell" manufactured by Bailey (ABB)</p>
Fume Exhaust Ventilation Hoods	
Ventilation Hoods in Labs	Used to measure outflow
Manometers	<p>Manometers measure the difference in gas pressure. There are two principal types: digital manometers and tube manometers, which consist of a tube with markings designating the pressure values. Mercury manometers are generally U-shaped glass or plastic tubes containing elemental mercury that have one end closed. The difference in the levels of mercury in each side of the tube indicates the pressure of the gas being measured.</p> <p>Manometers are frequently used to measure air pressure within air ducts or compressed air lines. They are commonly used in power plants, gas and water delivery systems, and other applications.</p>
Laboratory manometers	
Commercial-Industrial manometers	(many types and uses)
Dairy barn manometers	(tube type, measures milking system vacuum)
Gas meter pressure safety device	(tube device, likely no longer manufactured but many in use)
Permeter	used to measure the permeability of a sand mass to the flow of air (foundry applications)
Mercury diffusion pump	(laboratory/educational use)
Bilge Pump	
Float controls	
Strain gauges [medical name??]	Measure forearm blood flow, or arterial inflow, using a technique called strain gauge plethysmography. Mercury is contained in a fine rubber tube which is placed around the forearm. The gauge measures the increase in forearm circumference as pressure is applied.
<b>THERMO-ELECTRIC DEVICES</b> (i.e., electronic or electric functions but where the mercury may not physically make or break an electric circuit)	
Thermostats (non-digital)	Thermostats are used to control the temperature not only in buildings, but also in equipment, cold rooms, water treatment facilities, and other locations. Digital and electromechanical alternatives are available.

Thermostat probes in electrical equipment	
Thermal switch	integral or remote mounted solid state control (similar to a thermostat)
Thermoregulator	an adjustable mercury in glass device with an electrical output dependent on the position of the mercury column

Compiled from

*Instruments, Products, and Laboratory Chemicals Used in Hospitals That May Contain Mercury, Health Care Without Harm Fact Sheet, Pub 2-03, November 5, 2002*

*INFORM: Strategies for a better environment. "Purchasing for Pollution Prevention: Mercury-Free Industrial Thermometers, Manometers, Thermostats, and Switches Fact Sheet," © 2005 INFORM, Inc.*

*Land & Water Resources Council (1999): "Labelling and Collection of Mercury-Added Products," report for the Maine Legislature dated January 1999. (List by J. Gilkesen)*