

Other non-electronic products

Canada and other stakeholders (IPEN)

1. Photographic film/paper

2. Mercury-containing counter balancers (tire balancers/wheel weights)

1. Category of mercury-added product	Other non-electronic products
2. Further description of the product	1. Photographic film/paper
3. Information on the use of the product	<p>Film and photographic paper that contains mercury as part of the developing process</p> <p>Information from experts Specialized silver halide photographic papers and motion picture and X-ray films may contain trace amounts of mercury in order to reduce the formation of an unwanted background image during processing (Baldsiefen et al. 1951, NEWMOA 2017: IMERC database, specialized photographic products). According to information from one manufacturer and the IMERC database, mercury has now been replaced in silver halide photographic papers and films (Eastman Kodak Company 2015, NEWMOA 2017). Mercury content was 0 to 10 ppm, total annual use: 0.6 g (2004, one manufacturer, USA).</p>
4. Information on the availability of mercury-free (or less-mercury) alternatives	<p>Canada <u>Main alternatives:</u> i) Digital cameras and prints; ii) Mercury-free film and photographic paper</p> <p>Alternatives are widely available and appear to have been available since the 1970s. Little information is available on the current use and availability of mercury-containing film and photographic paper.</p>
5.(i) Information on the technical feasibility of alternatives	<p>Canada Mercury-free photo papers perform just as well if not better than mercury-added photo papers¹. Alternatives for mercury added photographic film and paper are most widely used and are therefore assumed to be economically and technically feasible.</p>
5.(ii) Information on the economic feasibility of alternatives	
6. Information on environmental and health risks and benefits of alternatives	<p>Canada Mercury-free photographic film and paper do not require special treatments for handling or disposal.</p>
7. Additional information	NA
8. Other relevant information pursuant to Decision MC-3/1	NA

9. References	<p>https://imaging.kodakalaris.com/sites/uat/files/wysiwyg/pro/Silver_Halide_White_Paper.pdf</p> <p>Baldsiefen, W. D.; Conrad, L. J., Linkhart, R. N. (1951): Silver halide emulsions. Patent no. 2,540,086.</p> <p>Eastman Kodak Company (Ed.) (2015): Silver Halide Photographic Paper. Available online at https://imaging.kodakalaris.com/sites/uat/files/wysiwyg/pro/Silver_Halide_White_Paper.pdf, checked on 7/29/2019.</p> <p>NEWMOA (Ed.) (2017): Mercury-Added Products Database. Available online at http://www.newmoa.org/prevention/mercury/imerc/notification/.</p>
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1. Category of mercury-added product	Other non-electronic products
2. Further description of the product	2. Mercury-containing counter balancers (tire balancers/wheel weights)
3. Information on the use of the product	<ul style="list-style-type: none"> • Mercury-containing counter balancers can be used in a variety of mechanical components including engines, drive shafts, and pumps. It is estimated that each mercury-containing balancer contains 99.2 g of mercury. Although these are now prohibited for use in Canada, previously they were used mostly on tires in various types of vehicles including trucks, cars, motorhomes, motorcycles, jet skis, and ultralites. • Mercury-containing tire balancers consist of mercury filled tubes that are fitted to rotating mechanical parts. This type of tire balancer uses mercury in a continuous active balancing system that uses centrifugal force to position the liquid weight (mercury) in counterweight positions. This allows tires to rotate without causing vibrations. • The purpose of a tire balancer is to eliminate uneven tire wear to extend the useful life of the tire. Manufacturers claim that using tire balancers results in a greater tire footprint and more control in adverse driving conditions. They also suggest that mercury-containing tire balancers increase fuel mileage by up to 5% and tire life by up to 50%.¹
4. Information on the availability of mercury-free (or less-mercury) alternatives	Canada <ul style="list-style-type: none"> • The most similar available products to mercury-tire balancers are bolt-on centrifugal liquid rings and internal liquids that are injected into the tire.

	<ul style="list-style-type: none"> • Non-liquid types of tire-balancers (wheel weights) are also available alternatives and are typically made from tin, steel, or high-density polymer composites. These wheel weights can be coated or non-coated, and adhesive or clip-on. • Clip-on or adhesive wheel weights made from lead are also alternatives; however, they may not be an appropriate substitute due to environmental and human health concerns. <p>IPEN Liquid alternatives to mercury containing counter-balancers (tire weights) are available.</p>
<p>5.(i) Information on the technical feasibility of alternatives</p>	<p>Canada</p> <ul style="list-style-type: none"> • A study conducted for the Government of Canada found that that for most manufacturers, wheel weights made of steel had no higher costs than wheel weights made of lead and performed similarly. • The non-toxic tin, steel, and composite alternatives that have been developed meet the main technical requirements for tire balancing products. Mainly that they are: made of a dense material, corrosion resistant and function in a range of operating temperatures.
<p>5.(ii) Information on the economic feasibility of alternatives</p>	<p>Canada</p> <ul style="list-style-type: none"> • Mercury-containing tire balancers are not produced in Canada, and there is little information comparing the costs and performance of them to mercury-free tire balancing products. However, anecdotal research suggests that mercury-containing tire balancing products have a higher up-front consumer cost compared to other tire balancing products.² • The costs of metal wheel balancers fluctuate with the costs of the raw materials.³
<p>6. Information on environmental and health risks and benefits of alternatives</p>	<p>Canada</p> <p>Mercury-free tire balancing products contain internal compounds or liquids that are non-toxic; making their use and disposal safer for the environment and human health compared to mercury-containing tire balancing products.</p> <p>External wheel weights made of steel are also non-toxic to the environment or human health. One benefit of metal wheel weights is that they can be recycled. However, steel wheel weights made of recycled material may contain additives such as nickel and chromium, which could have a relatively small impact on human and/or environmental health.⁴ Coated steel weights are currently the most environmentally friendly solid wheel weight product.⁶</p>

	<p>Solid wheel weights are often mismanaged at the end of product life when taken out of service. Employees in the tire and wheel service industry who handle lead wheel weights, in particular, can be exposed and also bring contamination home with them.⁴</p> <p>Solid wheel weights fall off during normal use. Although lead is a toxic substance, it is still preferable to use lead wheel weights compared with mercury tire balancers because lead is less volatile than mercury and solid wheel weights are relatively easier to collect and contain than a liquid containing mercury.⁷</p>
<p>7. Additional information</p>	<p>NA</p>
<p>8. Other relevant information pursuant to Decision MC-3/1</p>	<p>Canada</p> <p>The manufacture and import of mercury wheel weights is prohibited under Canada's Products Containing Mercury Regulations which came into effect in 2014. New cars entering the Canadian market currently have mercury-free tire balancers installed. As a result, no mercury-containing tire balancers are expected to be available in Canada.</p> <p>Mercury-containing tire balancers have also been banned in some American states and in the European Union. There was little information on the availability of mercury-containing tire balancers and their alternatives in other regions.</p>

9. References

- 1 For example: <http://www.balancemasters.com/trucks/index.html>
- 2 For example: <http://forum.prevostownersgroup.com/archive/index.php/t-3485.html>; <https://www.turbodieselregister.com/threads/balance-master-vs-centramatics.238074/>
- 3 Toxecology Environmental Consulting Ltd. (2013). Background study and use pattern for lead wheel weights in Canada.
- 4 California Environmental Protection Agency (2011). Wheel weight alternatives assessment. Available from: <https://dtsc.ca.gov/wp-content/uploads/sites/31/2017/05/AAWheelWeights.pdf>
- 5 Minnesota Pollution Control Agency. (N.D.) Lead and mercury wheel weights. Available from: <https://www.pca.state.mn.us/quick-links/lead-and-mercury-wheel-weights>
- 6 State of Washington. (2008). Environmentally preferable purchasing fact sheet: wheel weights. Publication No. 13-07-008. Available from <https://fortress.wa.gov/ecy/publications/documents/1307008.pdf>
- 7 Government of Canada. (2007). Proposed risk management instrument for mercury-containing products. Available from: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/proposed-risk-management-instruments-mercury-products.html#s2_7