Extract from the Government of Canada web site re Bisphenol-A and polycarbonate:

www.chemicalsubstanceschimiques.gc.ca

. What is bisphenol A?

Bisphenol A (BPA) is an industrial chemical used to make a hard plastic called polycarbonate and to make epoxy resins.

Polycarbonate is used in a number of household items, including baby bottles, re useable water bottles, pitchers, water carboys, tableware and storage containers.

Epoxy resins are used as a protective coating in metal-based food and beverage cans.

It serves an important role in the composition the thin coating applied on the interior surface of the can. The coating prevents corrosion of the can and contamination of food and beverages with dissolved metals. It also plays an important role in preserving the quality and safety of the canned food.

Plastics and resins made from bisphenol A can also be used in a range of other products including:

- medical devices (e.g. blood oxygenators, incubators, and respiratory devices)
- dental sealants
- sporting and safety equipment (e.g. hockey helmets)
- electronics (e.g. alarm devices, mobile phone housings, and computers)
- automotive parts (e.g. headlights, bumpers, and inside lights)

Bisphenol A is not found naturally in the environment.

2. Why is the Government studying Bisphenol A?

Canada is the first country in the world to take action on Bisphenol A, thanks to our Chemicals Management Plan. This Plan was introduced in 2006 to review the safety of widely-used chemicals that have been in the marketplace for many years and to update our knowledge and understanding of these chemicals.

Bisphenol A, along with approximately 200 other chemicals, was identified as a high priority under the Government's Chemicals Management Plan because it had been identified as a chemical that could affect reproduction.

3. What are the potentially harmful effects of Bisphenol A?

Based on the results of our assessment some laboratory studies on animals suggest that Bisphenol A at low levels of exposure can affect neural development and behaviour when the animals are exposed in very early life.

Health Canada scientists do not believe a case has been demonstrated to link breast and prostate cancer or obesity and Bisphenol A. Health Canada scientists will continue to evaluate all new scientific evidence as it emerges from the domestic and international scientific community.

4. What are the results of the Government of Canada's assessment for bisphenol A?

The draft screening assessment proposes Bisphenol A is "toxic" to human health and the environment, as defined in the Canadian Environmental Protection Act, 1999.

This preliminary assessment tells us the general public needs not be concerned. Our focus is now on newborns and infants (under 18 months). Science tells us that exposure levels are below those that could cause health effects, but since

they are close to the levels where potential effects could occur, the Government wants to be prudent and reduce exposures further.

With respect to ecological effects, our initial assessment shows that at low levels, Bisphenol A can harm fish and organisms over time. Studies also indicate that it can currently be found in municipal wastewater.

5. How are newborns and infants exposed to bisphenol A?

The main sources of exposure for newborns and infants appear to be:

1. a result of bisphenol A migrating into liquid infant formula from infant formula cans;
2. from bisphenol A migrating into hot and boiling water placed in polycarbonate baby bottles, which when cooled, is used to mix with powered formula, or given directly to the infant;

6. If the lining on infant formula cans contain bisphenol A, should I be concerned giving infant formula to my baby?

Parents and caregivers should not be concerned about feeding canned formula to newborns and infants. Exposure to biphenol A through canned formula is low, and the nutritional benefits of infant formula far outweigh possible risk.

Health Canada is working with industry to reduce the level of bisphenol A in the linings of infant formula cans, and to find alternative technologies.

7. If polycarbonate baby bottles contain bisphenol A, should I stop using them?

Parents and caregivers can continue to use polycarbonate baby bottles. There are steps you can take to reduce your baby's exposure to bisphenol A.

Do not put boiling water in baby bottles, as very hot water causes bisphenol A to migrate out of the bottle at a much higher rate. Studies suggest that migration of bisphenol A into the contents of baby bottles is much lower when liquids put into the bottle are not at elevated temperatures (i.e. boiled water).

Water should be boiled and allowed to cool to lukewarm in a non-polycarbonate container before transferring to baby bottles. This advice is consistent with proper instructions for the preparation of infant formula.

These bottles can be sterilized according to instructions on infant formula labels and can be cleaned in the dishwasher. The bottles should be allowed to cool before placing infant formula into them.

Baby bottles should not be heated in the microwave as the liquid may heat unevenly and can cause burns to your infant when consumed.

8. If polycarbonate baby bottles pose less risk as long as you don't add boiling water, why are you proposing to ban them?

Alternatives to these types of baby bottles are readily available, thus it is a prudent measure to continue to reduce risk to this vulnerable group.

9. How do I recognize which baby bottles are made from polycarbonate with bisphenol A?

Polycarbonate is a clear, hard plastic, which can be coloured. It typically has the number 7 in the centre of the recycling symbol, which is found on the bottom of the bottle. Although the number 7 is a broad category, you can only be sure it is polycarbonate if the number 7 also has a PC beside it. If the bottle does not have a recycling symbol, there is no certain means of identifying whether or not it is polycarbonate.

10. Do alternatives to polycarbonate baby bottles exist? Are they safe?

Several alternatives to polycarbonate baby bottles exist. Laboratory tests conducted by Health Canada on alternative plastic bottles currently available on the market did not show the presence of any significant migratable bisphenol A. Glass baby bottles are also readily available.

11.Should I be concerned about polycarbonate bottles, tableware and food containers?

No. Studies indicate that migration of bisphenol A into liquids is minimal at room temperature and you should not be concerned about using these products.

If Canadians are concerned about migration into food as a result of heating in these containers, alternatives, such as those made of glass, are readily available.

12. Should consumers avoid canned foods and drinks?

No. The current exposures from canned foods and drinks represent a negligible health risk to the general population. Health Canada does not recommend any changes in eating habits. Canadians are encouraged to eat a variety of foods as recommended by Eating Well with Canada's Food Guide.

Health Canada is committed to working with the industry to investigate the safety of any possible replacement that industry may consider for bisphenol A-containing epoxy-based linings used in cans.

13. Shouldn't we just throw out these products containing bisphenol A if they are so hazardous?

There is no need to throw them out. However, it is important to use them properly to minimize exposure to bisphenol A. If you are concerned, alternatives to polycarbonate products are available.

14. What is the Government doing to protect Canadians from bisphenol A?

Because the results of the screening assessment indicated potential health risks to newborns and infants Health Canada is taking action to protect this vulnerable population. That is why we are proposing measures to ensure that their exposure to bisphenol A is kept as low as possible. The focus of these measures is on the key sources of exposure for newborns and infants: polycarbonate baby bottles and canned infant liquid formula.

First, we are immediately providing practical advice to parents and caregivers on how to reduce infant and newborns' exposure to bisphenol A.

Secondly, if no new information comes forward during the public consultation period, it is our intention to ban the importation, sale and advertising of polycarbonate baby bottles.

Thirdly, we are working to establish codes of practice with the food packages industry to reduce levels of bisphenol A in infant formula can linins to as low as reasonable achievable.

Fourth, we will support industry in assessing the safety of alternatives to bisphenol A in can linings.

And fifth, we will consider setting stringent migration targets for bisphenol A in infant formula cans.

To address the environmental concerns, Environment Canada is taking early action to protect the environment from the harmful effects of bisphenol A, making Canada the first country in the world to take such a leadership position. We are taking an aggressive and precautionary approach with this new information and will work with stakeholders to find ways

to stop bisphenol A from being released into the environment. We will move quickly to determine best practices and take the necessary measures to ensure its safe use and disposal.

There are still many unanswered questions about bisphenol A. Therefore, the Government will begin an aggressive research plan focussed on mothers, the fetus, newborns and infants as well as other areas of potential harmful effects, such as prostate/breast cancer, to better define sources of exposure and key points in time when exposures may cause effects. As the Chemicals Management Plan relies on strong stewardship from industry, we will also be working with industry, and others, to help us fill these gaps.

15. How can the government recommend Canadians continue using products that contain a substance you have deemed to be toxic?

"Toxic" is a term that is used in the *Canadian Environmental Protection Act 1999.* It indicates that the Government has determined that there are some situations in which the substance is harmful to health and/or the environment. In the case of bisphenol A, Health Canada and Environment Canada scientists have identified situations in the draft screening assessment which are a cause for concern, and those situations are, therefore, the basis for using the term "toxic." By declaring the chemical "toxic" under the Act, the Ministers of Health and Environment then have the authority to implement measures to manage the risks posed, such as regulations.

16. If bisphenol A is found in fish, are they safe to eat?

A few European studies reported levels of bisphenol A found in fish. There are no data on levels of BPA in fish available for sale in Canada. However, considering the highest levels of BPA reported in fish by these European studies, Health Canada has concluded that exposure from fish sources does not represent a health risk.

Health Canada has committed to including bisphenol A as one of the chemicals to be regularly monitored in various foods consumed by Canadians, as part of the Canadian Total Diet Study. This study is the best tool used by Health Canada's scientists to assess any potential risk on Canadians' health from chemicals present in food, including bisphenol A.

17. Does the recent assessment from the National Toxicology Program in the United States agree with the proposed conclusions of the Health Canada assessment?

The conclusions of the assessments are very similar. Both identify that there is some concern for neural and behavioural effects in early stages of development.

The NTP also identifies concern for other developmental effects (i.e., effects in prostate and mammary glands, and an early age of puberty in females). These effects occur at approximately the same levels of exposure as the neural and developmental effects.

The Health Canada assessment considered those additional effects but concluded the data were too uncertain at this time to draw conclusions.

Both assessments pointed out that these studies provide limited evidence for adverse effects and more research is needed to better understand their implications for human health.

However, as the developmental effects identified as of concern by Health Canada occur at similar levels of exposure to those additional effects identified by the NTP, actions that Health Canada is proposing to reduce exposures will help address those effects as well.

Health Canada will consider any additional input it receives during the public comment period on this issue, as well as others, before developing its final conclusions.

18. Should I be concerned with the use of polycarbonate food storage containers or tableware?

Polycarbonate is used to make some tableware (such as hard plastic plates and cutlery) and storage containers. It is considered that migration of bisphenol A from these products, at serving temperatures, is minimal. More research is needed to determine if heating food in these containers increases the rate of migration. In the meantime, if you are concerned about migration into food from heating food in these containers, alternatives such as those made of glass, are readily available.