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Product safety : a federal presence

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PRODUCT SAFETY - A FEDERAL PRESENCE *

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For the first half of their lives, people of this country are more likely to die from accidents than from any other cause. Accidents as a cause of death are only outranked by cancer and cardiac vascular disease. It is depressing to think that every four hours somebody in Canada dies as the result of an accident in the home and that accidents kill 2,000 of our children under the age of 15 each year. Accidents then represent a serious social problem in terms of both human suffering and economic waste which must be tackled on all levels by the individual, industry and governments.

In any discussion related to Product Safety, accident statistics play a dominant role. I find myself becoming increasingly concerned however during such discussions that the "guts" of the issue - "people being hurt" is frequently lost when matters are reduced to purely statistical terms. For example, some 350 children a year are involved in accidental ingestions of drain cleaner compounds. While this tells us that children are hurt this tells us nothing of what happens to the individuals involved in these accidents. The child that accidentally ingests a tablespoon of the caustic type liquid drain cleaner found in most homes today will spend a year in the hospital and be exposed to very painful medical treatments. The sad part of such a situation is that there is a high probability that there will not be full recovery and the child will suffer from this accident for the balance of his life. The direct cost of such an accident will be in the order of \$35,000-\$40,000. The long term cost to the individual and the community if recovery is minimal could be a great many times this figure.

I suggest that the total social cost is the measure which must guide Product Safety discussions in the future rather than the straight numbers game which has played such an important role in the past.

I find it interesting that accidents continue to be regarded by some as resulting from causal sequences that are somehow different from those that lead to disease and other everyday events. As a reflection of this attitude, accidents remain the only major source of morbidity and mortality which many continue to view in extra rational terms. "Luck", "chance" and "acts of God" are all popular and culturally acceptable explanations of accidents although such concepts have gradually fallen into disuse in explaining the causation of disease. We are really concerned with the interactions

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occurring in a three component system involving victim, product and environment. I think that as engineers and designers you will agree that accidents "don't just happen" - they are caused.

It may be of course that for the many years during which the all too frequently distorted but often quoted CAVEAT EMPTOR influenced the marketplace, the consumer was indeed relying very largely on "luck" insofar as the product factor of our causal triangle is concerned. Any discussion no matter how brief of Product Safety must recognize this concept as it is usually presented - "the buyer must beware".

I recently came across a reference to this latin term which is to be found in a "BOKE OF HUSBANDRIE", published in 1534. The author in cautioning of the pitfalls of buying a horse stated - "If he be tame and have been rydden upon, then caveat emptor, for the buyer hath both his eyes to see and his hands to handell". Some 368 years later an Irish judge crystallized matters by pointing out in 1902 "Caveat Emptor does not mean in law or latin that the buyer must "take chance"; it means that he must "take care". Caveat Emptor is not a rigid rule in common law as believed by some but a flexible general principle subject to limits placed on it by common sense.

The common law as you know provides remedies by which consumers can gain satisfaction where products are inadequate. You are also undoubtedly aware of the laws of negligence as well as other conditions imposed by The Sale of Goods Act. It is not my intention to consider these aspects of the law in any depth in this presentation. The main point I want to make here is that common law is primarily concerned with remedies (compensations) which are applied after the fact rather than in direct prevention of accidents in the first instance. I am not aware for example of any instance on this continent where a potentially dangerous product has been removed from the market by direct intervention based on the common law.

Let it be clear, that this body of law does have a very major influence on the marketplace in matters relative to Product Safety. I would like to draw your attention to a judgement rendered by Mr. Justice Laskin of the Supreme Court of Canada, in December 1971. Unfortunately time does not allow us to consider this in depth but I have asked the conference organizers to distribute copies to all participants. I urge any of you involved in the marketing of chemical products to read this document in detail.

In brief the case involved damage to a home and personal injuries by a flash fire which resulted when solvent fumes from a lacquer sealer were ignited by the pilot flame of a gas furnace situated-not in the same room as the one where the lacquer was being used - but in an adjoining room. The product label carried a general flammability warning but failed to carry a specific caution to keep away from pilot

lights. Neither did it carry a specific caution of the danger of fumes spreading to adjoining areas. The court upheld a previous judgement that the warnings were not sufficiently explicit and allowed damages. The consumer's right to know all the facts in order to protect self and family was clearly established.

I can assure you that many companies have examined their product labels in the light of this ruling. There can be no doubt that this judgement will continue to influence product label information for a long time to come. Manufacturers can no longer hide behind product labels carrying minimal or incomplete safety information.

Full reliance has not been placed on the common law and preventive type action has been taken elsewhere. The provinces for example deal with product safety matters as evidenced by the control of vehicles under highway legislation, stuffed goods acts and the activities of their various hydro authorities. Additionally local health authorities have powers to intervene in the sale of articles which are a threat to public health. Too, we have the use of voluntary standards by industry.

Action at these levels does, however, have limitations as it is difficult in fact almost impossible to regulate imported products or the inter-provincial movement of nationally distributed products on a strictly provincial or local basis. Imports also create problems where voluntary product standards are used within a Canadian industry. I would nevertheless hasten to emphasize that these voluntary standards have played an important role and will continue to do so in the Product Safety field.

Various forces then have been influencing Product Safety matters over a period of time. The corner stone being the individual's right to redress under the common law. Total satisfaction here however is always in the balance and indeed may be long deferred. From all points of view the social objective should be to protect the total community in ways which largely eliminate the necessity of pursuing redress in this time honoured fashion. To achieve this objective the Federal Government has over a period of time moved deeper into the field of Product Safety through the application of the criminal law.

At present there are six (6) pieces of legislation on the books which are concerned with whole or in part specifically with Consumer Product Safety Matters. Because of the time element I can at best summarize the thrust of each act and advise you where detailed information may be obtained if required:

Food and Drugs Act (Health and Welfare Canada)

This Act amongst other things is concerned with the efficacy and safety of drugs, foods and food packaging, cosmetics and medical devices. In the case of new ethical drugs, manufacturers must submit results of preclinical laboratory tests for Departmental review. If the data is satisfactory, approval is granted for the manufacturer to carry out closely controlled clinical tests. The results of these tests are reviewed by Departmental Pharmacologists and Medical Specialists to determine if the new drug is safe for its intended purpose and is suitable for marketing.

In other areas, such as food, food packaging, and medical devices, standards are established by regulation which are enforced by the Agency's Field Staff. Medical devices are an area of increasing concern and if you are involved in the design of any equipment for which medical claims are to be made, I would urge that you contact the Health Protection Branch of Health and Welfare Canada early in your development program.

Pest Control Products Act (Plant Products Division-Agriculture Canada)

This Act is concerned with the efficacy and safety of herbicides, rodenticides, disinfectants, preservatives, etc. The manufacturer of any product coming within the purview of the Act must submit full information on product composition, product performance, toxicological data, environmental effects and any other supporting information which the Department may require. This is evaluated by scientists of a number of agencies such as Health and Welfare Canada and the Department of the Environment. Products are registered under the Act and limitations on the use and sale of products prescribed. Additionally labelling requirements are rigidly controlled.

Motor Vehicle Safety Act (Motor Vehicle Branch-Ministry of Transport)

This Act is concerned with the safety of all new engine powered vehicular equipments and trailers. Engineering Standards are established under regulations of the Act and vehicles must carry a label declaring compliance with regulatory requirements of the Act. While there is no premarket clearance by the Department, manufacturers must nevertheless carry out full tests on their designs to ensure compliance. Departmental Inspectors monitor production vehicles in this regard.

Radiation Emitting Devices Act (Health Protection Branch-Health and Welfare Canada)

This Act deals with the safety of radiation emitting

devices such as television sets and microwave ovens. Engineering Standards are established and products in the marketplace are monitored for compliance. There is no premarketing clearance procedure for these products but manufactured products are monitored on a regular basis.

Explosives Act (Energy, Mines and Resources)

This Legislation is concerned with the safety and storage of all explosive products including such consumer products as fire crackers, fireworks, caps for cap guns, christmas crackers, etc. Standards are set for the maximum amount of black powder which can be used in such consumer products. A licensing procedure is involved. We have just come through the Queen's birthday and many of you will have found that fire crackers can no longer be sold in this country. Simple "family" type fireworks such as sparklers and roman candles are however still available to those over 18 years of age. I might note that this ban of fire crackers was the result of very heavy consumer pressure because of accidents associated with their use. Consumers are out there and organized - keep this in mind as we go along this morning.

I now come to the piece of Product Safety Legislation with which I am most familiar and which is by all odds the broadest scope, and the one which will be of greatest interest to most of you for some time to come.

The Hazardous Products Act which came into force on June 29, 1969, is specifically concerned with what might be referred to in very general terms as consumer goods. It excludes from its purview products coming within the Food and Drugs Act, Explosive Act, Pest Control Products Act and Atomic Energy Control Act. The meat of the Act for our purposes is to be found in Section 8(1) which I would like to read in full:

8(1) The Governor in Council may by order amend Part I of Part II of the Schedule by adding thereto

- a) any product or substance that is or contains a poisonous, toxic, inflammable, explosive or corrosive product or substance or other product or substance of a similar nature that he is satisfied is or is likely to be a danger to the health or safety of the public, or
- b) any product designed for household, garden or personal use, for use in sports or recreational activities, as life-saving equipment or as a toy, plaything, or equipment for use by children that he is satisfied is or is likely to be a danger to the health or safety of the public because of its design, construction or contents, or by deleting therefrom any product or substance the inclusion of which therein he is satisfied is no longer necessary.

The Act then defines a Hazardous Product as any product included in either Part I or Part II of its Schedule.

It is unlawful to advertise, sell or import into Canada a product included in Part I of the Schedule. It is, moreover, unlawful to advertise, sell or import into Canada a product included in Part II of the Schedule except as authorized by regulations. An offence is punishable, on summary conviction, by a fine of \$1,000, imprisonment up to six months or both, or as an indictable offence, by imprisonment up to two years.

It is most important to note in Section 8(1) that the Governor in Council can move against any product or substance which he is satisfied is or is likely to be a danger to the health or safety of the public. This action can be based on laboratory tests or professional opinion, it does not need to be supported by hard statistical evidence that the product or substance has in fact injured or killed someone. There is then a strong preventive thrust to this legislation supported by criminal sanctions.

With respect to enforcement, Inspectors are designated under the Act by the Minister and these Inspectors have powers of search and seizure. Thus, A Hazardous Products Inspector may enter, at any reasonable time, any place where he reasonably believes a Hazardous Product (i.e. Product included in Part I or Part II of the Schedule to the Act) is manufactured, prepared, preserved, packaged, sold or stored for sale. He may examine the product, take samples and examine any records, books or other documents believed to contain information relevant to the enforcement of the Act. Products found to be in contravention of the Act or regulations may be seized.

As we have seen a hazardous product is by definition a potential danger to someone. In order to allow for rapid action to clear such products from the marketplace, parliament recognized that the broad powers I have mentioned had to be placed in the Minister's hands. It was, however, also recognized that manufacturers and distributors of a product placed on the Schedule to the Act had a right to be heard.

To this end three protective devices are included in the Act. First the Minister may add or delete products from the Schedule through the Governor General in Council with the restriction that when so doing the amendment must be tabled before the Commons and Senate within 15 days after it is made. If these bodies object the amendment is ineffective. Second, on adding an item to the Schedule of the Act, the Minister, if requested by the manufacturer, must establish a Board of Review to examine the facts relative to the need for such action. The Board must contain three members and its report must be made public unless the Board itself recommends withholding public distribution for reasons of "public interest" and the Minister agrees. Third, the owner may seek the release of seized

goods by direct application to a Magistrate.

The question which is no doubt foremost in your minds is "when is a product hazardous"? The statute is not specific in this regard as no single definition could possibly be devised which would be adequate for legal purposes. Possibly if we examine some of the items presently included on the Schedule to the Act, I can provide you with at least a feel for the basis on which matters have proceeded to date. You may not accept the rationale across the Board but this must be expected as we will be looking at problems through different eyes.

The first extensive regulations issued under the Act are referred to as The Hazardous Products (Hazardous Substances) Regulations. These require that the labels of certain household chemical products clearly declare associated hazards by the use of symbols and signal words. Additionally prescribed products must identify offending toxic or corrosive chemicals as part of a first aid statement. Specific cautionary statements are also required.

You have all seen the system in effect but a word of explanation might be of interest to you as consumers and parents as the system does quantify the hazards involved.

The death head, of course, identifies poisons. When this is enclosed in an octagon with the signal word danger, a mouthful or less is a fatal dose for an adult. A heaped teaspoonful would be fatal to a two year old child.

When the death head is surrounded by a diamond with the signal word warning the fatal dose is about a cupful for an adult and about an ounce for a two year child.

The death head associated with a triangle standing on its apex and the word caution indicates the fatal dose is in the order of a $\frac{1}{2}$ pint for an adult or about $\frac{1}{2}$ cupful or less for a two year old child.

The skeleton hand is used to identify corrosive hazards. The octagon here indicates severe skin or mucous membrane damage will occur in less than 30 seconds unless the chemical is flushed away. The diamond symbol indicates severe corrosive tissue damage can be expected if longer exposure times are involved.

Similarly the flammability symbol or flame is related to flash point as follows:

Octagon	- flash point 0°F to 20°F
Diamond	- flash point 20°F to 50°F
inverted triangle	- flash point 50°F to 80°F

The labelling aspect of these regulations are directed at the principle enunciated by Mr. Justice Laskin - the consumer needs to know the properties of a product if he is to protect himself.

The Regulations also recognize that in spite of the best efforts of parents, based on this label information, children may nevertheless gain access to very dangerous products. Safety packaging is being progressively specified for such items. These special packaging requirements presently apply to liquid drain cleaners of the acid and alkali type and certain furniture polishes of the lemon oil type. It can be expected that the list of products dealt with in this manner will be extended in months to come. As designers you will be interested in knowing that the test protocol of the safety packaging regulations is based on clinical type tests involving children and not on specific design criteria. Without design constraints packaging designers are free to pit their knowledge and skills against the efforts of 200 children in the three to four year age group - a real challenge!

These Regulations also make it an offence to deliver samples of regulated substances by house drops or through the mail. This is to ensure that samples of such products are placed in the hands of parents or other adults and are not left where they may be accessible to young children. Our youngsters require special attention and protection and this must be recognized in product design and formulation.

These Regulations also specifically prohibit the sale of consumer metal polishes which contain cyanide salts. Three years ago a silver polish was on the market which contained a sodium cyanide/silver cyanide complex as its active ingredient. The cyanide concentration involved was such that a teaspoon would cause instantaneous death of a small child on accidental ingestion. The ban was introduced on the grounds that silver polishes could be formulated which were far less toxic and that there was no place in the home for such a lethal poison. A Board of Review established at the request of the manufacturer upheld the ban.

Another set of Regulations under the Act of a mechanical nature deal with children's car seats and harnesses. This is a case where a product started out some years ago as a convenience item to keep the "little one" out of the driver's hair and in time evolved into a safety device. Products on the market until a year ago reflected this background as they ranged from simple hook-over designs which allowed a child to catapult into the windshield on impact to those of advanced and sophisticated design. In consequence a consumer making a purchase had no way of knowing what degree of protection if any would be provided to a child.

The hook-over designs have now been banned under the Hazardous Products Act as they provided no real protection and in fact could increase the severity of injuries received on vehicle impact. Regulations of the Act require any other seat design which is imported, advertised or sold to comply with engineering and labelling requirements. While the Regulations are essentially of the performance type certain design details are specific. While every effort is being made to use performance type standards for regulatory purposes to allow designers maximum freedom, there are situations which demand specifics if consumer protection is to be achieved. In these Regulations it had to be recognized that the organs of a child's chest are housed in an elastic and highly compressible thoracic cage not amenable to heavy loading by seat webbing. Therefore all webbing components must be of a minimum width. Additionally a child's head is relatively massive and certain seat components must be padded with deformable materials to minimize injury which could be associated with rapid deceleration.

The Regulations are especially concerned that children's car seats carry very complete installation instructions to ensure proper protection of the occupants. It is also recognized that some seats are not suitable in certain cars. Any limitations of this type must be shown on the seat label. Once again the need to know concept shows through the Regulations.

Regulations under the Act also deal amongst other things with dangerously flammable textile products, toys and children's playthings, and the lead and cadmium release characteristics of glazed ceramic dishes. The common thread throughout all these Regulations is the concern with hidden dangers. The consumer can cope with the obvious such as the sharp knife which has been part of his environmental experience but he has no base for reaction where he is unaware that an earthenware jug is releasing toxic quantities of lead into his orange juice everyday. Similarly the mother who placed a particular type of chime rattle in her baby's hands had no way of knowing that it could readily break on impact against the crib and expose the child to the sharp wires of the chime device. There is then the basic concern that regulated products should be designed free of hidden dangers in the first instance. But let us not forget that hazards within the meaning of the Act and its Regulations can creep into a good basic design through manufacturing errors. These also present a threat to users and are therefore considered equally offensive under the law.

We have a number of sources of information to help identify problem areas.

First the Department of Consumer and Corporate Affairs maintains Post Office Box 99, Ottawa, as a focal point for consumer complaints. All correspondence to this box

regarding Product Safety matters is referred to my office for investigation. In addition many organizations including The Canadian Pediatric Society, The Association of Canadian Fire Marshals and Fire Commissioners, The Association of Chief Electrical Inspectors, The Canadian Safety Council, The Consumers Association of Canada and Provincial Coroners, all alert the Department to Product Safety problems. Additionally, the news media as might be expected are never bashful about drawing our attention to accidents involving consumer products.

Many of the product problems identified by these sources are very specific and are resolved on a voluntary basis by discussion with manufacturers. By way of example, information came to hand from a physician that a certain exercise cycle on the market was not equipped with a chain guard, and had caused injuries. On being advised of the problem by the Department the company took immediate corrective action. If there had been a wide spread problem in this product area more clout would probably have been required and action would have been taken to bring the product within the purview of the Hazardous Products Act and appropriate mandatory engineering standards established. Although there are some that would not agree, every effort is made to take a reasonable approach in the administration of the Act.

The Minister is always very concerned that all factors are carefully weighed before items are included on the Schedule to the Act. This is of particular significance in determining the implementation dates for bans or regulations. The type and level of hazard and its consequences are normally examined in the light of product utility, economic impact on an industry and possible effects on the consumer marketplace. This was stated in the following terms by the Honourable Robert Andras who held the Consumer and Corporate Affairs portfolio prior to the appointment of the Honourable Herb Gray.

"Any helpful model of the economy must recognize that there is a real meeting of interest between those who consume and those who product. That lies in the efficient utilization of all our national resources. But there are clear differences of interest and we have to get down to defining them, not with loose rhetoric but with precision. Witch hunting and hysteria are not likely to be useful. Where we must strike a balance between production and distribution efficiency and social costs, we have to make rational choices based upon full and realistic accounting of the consequences of our decision - the costs as well as the benefits. Such choices are the constant dilemma of Governments. They must be based on reason and not on the fashion of the moment but above all on lasting human values."

In the case of liquid filled baby teething rings contaminated with pathogenic bacteria what should be done? - Surely there could be no alternative to immediate removal of the product from the market regardless of the problems created for manufacturers or consumers. On the other hand where there is a low level hazard associated with say a toy, a years lead time might well be reasonably allowed.

We in this country have a tendency to feel that our progress in areas of social legislation lags that of other countries. In the case of product safety legislation, as reflected by the Hazardous Products Act, it can be said without hesitation we have been leaders and not followers. In a paper published in "Preventive Medicine" last year, Senator Warren G. Magnuson of the U.S. pleaded the case for comprehensive legislation which would allow for full authority "to head off any unreasonable consumer Product Safety Hazard, no matter what product, no matter what hazard by banning immediately if necessary - but in any case without needless delay, setting a minimum safety performance standards where appropriate". This really summarizes the thrust of our Hazardous Products Act which as I have indicated received royal assent in June 1969. Having recently attended an organization for Economic and Co-operative Development Meeting in Paris to discuss consumer safety matters, I can assure you that many of the member countries of that organization are envious of the strides Canada has taken in its concern for the welfare of its citizens.

Consumers know of this legislation and rightly demand that the undertaking to protect their interests should be fully implemented. What has become very clear to me in the four years I have been associated with the Hazardous Products Act and other consumer oriented legislation is that Government is without a doubt the third force in the marketplace. I find that as we go down the road in product safety that industry increasingly appreciates the existence of this Government/Consumer/Industry interface and is in general pulling with equal traces to solve what are obviously common problems.

With respect to the future I can only see more products being brought within the purview of federal safety legislation. If you as representatives of the design industry wish to minimize these regulations or bans as the case may be, I would urge an increasing awareness of your products and how they will respond to normal use, probable misuse and even probable abuse by consumers. You should be satisfied that your products will permit such use without causing damage or injury to consumers and that the products will tolerate these use conditions over a reasonable period of time.

Let me be clear that I appreciate that we have focused on the product and that the two other vectors of our system-users and the environment have been for all practical purposes ignored. The laws we had to consider set this pattern. You should nevertheless be aware that Departmental Educational Programs directed at consumers relative to product safety matters are being increased and that some moves are being made in the environment field. Additionally discussions are in progress to establish an accident reporting system which will yield causal type information rather than the medical type statistics of the past. The Department of National Health and Welfare and Statistics Canada are co-operating in the development of this information program. With more information on the events leading to accidents available all of us will be able to do a better job. Pending implementation of this program we can obtain much useful information from the NEISS (National Electronic Injury Surveillance System) Program which is in operation in the U.S. You might also like to know that my own organization in the past week has moved into a positive context. What was the Hazardous Products Division will now be known as the Product Safety Branch. It is my hope that with the organization changes which have been approved that we will be able to initiate more studies in the human engineering factors field as this relates to consumer products and also we hope to get more information of all types on product safety matters into the hands of industry and consumers in the months to come.

If the federal legislative program in product safety is to achieve its objective of assured safety for consumers and by consumers I mean all of us and our families, we must accept the challenge of joint responsibility. As designers you hold the key - the "buck" starts in the engineering design and product development departments of industry. You can take it that those of us concerned with administration of the Hazardous Products Act or other Federal Legislation mentioned would prefer to see you look after consumer safety in the first instance and keep that proverbial "buck" from arriving on our desks and perhaps ultimately in the courts.

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