

McDonald, David S

From: stan pijl <stanp75@yahoo.com>
Sent: October-27-14 3:33 PM
To: Office of the Legislative Counsel
Subject: Fw: E-cigarette Regulations

----- Forwarded Message -----

From: stan pijl <stanp75@yahoo.com>
To: "info@patriciaarab.ca" <info@patriciaarab.ca>; "jamiebaillie@bellaliant.com" <jamiebaillie@bellaliant.com>; "mlaqueens-shelb@eastlink.ca" <mlaqueens-shelb@eastlink.ca>; "dnorthmla@eastlink.ca" <dnorthmla@eastlink.ca>; "karencasey@ns.aliantzinc.ca" <karencasey@ns.aliantzinc.ca>; "ca@zachchurchill.com" <ca@zachchurchill.com>; "keithcolwell@eastlink.ca" <keithcolwell@eastlink.ca>; "frankmla@ns.sympatico.ca" <frankmla@ns.sympatico.ca>; "barrington@chrisdentremont.com" <barrington@chrisdentremont.com>; "office@delorey4antigonish.ca" <office@delorey4antigonish.ca>; "info@lenadiab.ca" <info@lenadiab.ca>; "patdunnmla@bellaliant.com" <patdunnmla@bellaliant.com>; "Pamela.Eyking@novascotia.ca" <Pamela.Eyking@novascotia.ca>; "terry.farrell@live.com" <terry.farrell@live.com>; "markfurey.mla@eastlink.ca" <markfurey.mla@eastlink.ca>; "seniorsmin@novascotia.ca" <seniorsmin@novascotia.ca>; "gordiegosse@ns.aliantzinc.ca" <gordiegosse@ns.aliantzinc.ca>; "Stephen.Gough@novascotia.ca" <Stephen.Gough@novascotia.ca>; "larryharrisonmla@gmail.com" <larryharrisonmla@gmail.com>; "lphines@ns.sympatico.ca" <lphines@ns.sympatico.ca>; "billhornemla@gmail.com" <billhornemla@gmail.com>; "pictoueaststue@gmail.com" <pictoueaststue@gmail.com>; "tonyince@tonyincemla.ca" <tonyince@tonyincemla.ca>; "keith@irvingmla.ca" <keith@irvingmla.ca>; "jessomeben@gmail.com" <jessomeben@gmail.com>; "labi@labimla.ca" <labi@labimla.ca>; "lunenburgmla@eastlink.ca" <lunenburgmla@eastlink.ca>; "johnlohrmla@gmail.com" <johnlohrmla@gmail.com>; "mmacdonald@navnet.net" <mmacdonald@navnet.net>; "pictouwestmla@bellaliant.com" <pictouwestmla@bellaliant.com>; "mla@geoffmaclellan.ca" <mla@geoffmaclellan.ca>; "alfiemacleodmla@ns.aliantzinc.ca" <alfiemacleodmla@ns.aliantzinc.ca>; "mlamacmaster@bellaliant.com" <mlamacmaster@bellaliant.com>; "brendan@brendanmaguire.ca" <brendan@brendanmaguire.ca>; "OAA@novascotia.ca" <OAA@novascotia.ca>; "PREMIER@novascotia.ca" <PREMIER@novascotia.ca>; "margaretmillermla@bellaliant.net" <margaretmillermla@bellaliant.net>; "info@kevinmurphy.ca" <info@kevinmurphy.ca>; "Hon.Kevin.Murphy@novascotia.ca" <Hon.Kevin.Murphy@novascotia.ca>; "eddieorrell@bellaliant.com" <eddieorrell@bellaliant.com>; "denisepetersmla@bellaliant.com" <denisepetersmla@bellaliant.com>; "chuck@chuckporter.ca" <chuck@chuckporter.ca>; "info@iainrankin.ca" <info@iainrankin.ca>; "kelly@kellyregan.ca" <kelly@kellyregan.ca>; "info@allanrowe.com" <info@allanrowe.com>; "michelsamson@ns.sympatico.ca" <michelsamson@ns.sympatico.ca>; "info@JoachimStroink.ca" <info@JoachimStroink.ca>; "Joycetreen@bellaliant.com" <Joycetreen@bellaliant.com>; "dianawhalen@gmail.com" <dianawhalen@gmail.com>; "davewilsonmla@eastlink.ca" <davewilsonmla@eastlink.ca>; "info@claredigby.ca" <info@claredigby.ca>; "info@andrewyounger.ca" <info@andrewyounger.ca>; "lenorezannmla@bellaliant.com" <lenorezannmla@bellaliant.com>; "LGO@novascotia.ca" <LGO@novascotia.ca>
Sent: Saturday, October 25, 2014 12:59 PM
Subject: E-cigarette Regulations

An analysis of the safety of e-cigarettes

Further to my previous email, I wanted to provide you with some information regarding e-cigarettes to help you in your consideration of the proposed regulations.

When considering the safety of e-cigarettes, we need to consider two groups of people and for each group we need to evaluate two cases:

1. The users of e-cigarettes (aka vapers)
 - a. Relative safety vs tobacco cigarettes
 - b. Relative safety vs not smoking at all
2. Anyone that could come into contact with the exhaled vapour from a vaper (aka bystanders):

- a. Relative safety vs tobacco cigarettes
- b. Relative safety vs not smoking at all

Now, let's consider each case individually:

1.a) Relative Safety of E-cigarettes vs tobacco cigarettes for users

We know the devastating effect of smoking tobacco. Long term users can expect a significant increase in short term and long term health issues, and a reduction in total lifespan. We know that this is because tobacco smoke contains numerous chemicals (4000+) and carcinogens (60+). Tobacco smoke is also comprised of ultra-fine particles, which are readily absorbed by the lungs. These chemicals and carcinogens, carried via ultra-fine particles are a direct result of the combustion of the tobacco leaf.

So how do e-cigarettes compare?

An e-cigarette works by heating a liquid, to create an aerosol (vapour). There is no combustion that takes place and no new chemicals or carcinogens are created in an e-cigarette that is properly used. What this basically means is what is put in the liquid is what is inhaled.

The liquid used in e-cigarettes is composed of only a few basic ingredients:

- Propylene glycol
- Glycerine
- Nicotine (if so desired)
- Flavourings

Propylene Glycol (PG) and Glycerine (also referred to as Vegetable Glycerin or VG) are the main components of e-cigarette liquid, comprising approximately 90% of the liquid.

PG has been used for decades for various usages, including in asthma inhalers and theatrical fog machines. It has been extensively studied and has never been found to warrant concern for inhalation. But don't just take my word for it. According to Health Canada:

"...there are no endpoints of concern for oral, dermal or inhalation exposure to propylene glycol based on the low toxicity observed in studies near or above testing limit doses. Based on this, the USEPA did not conduct any quantitative human health risk assessments and concluded that exposure does not present a human health risk of concern."

VG is similar to PG, in that it is used in many common items and poses no known risks or concerns with its use. It is one of the most benign organic liquids known to man. It is hypo-allergenic, non-carcinogenic, non-teratogenic and non-mutagenic. Health Canada has no concerns with it and has this to say about it:

"This chemical was NOT flagged by CEPA for further attention. The chemical was flagged for as a low human health priority."

Nicotine has gotten a bad reputation. Many people believe that nicotine is one of the reasons why tobacco smoking is so harmful. In fact, long-term nicotine use has been shown to have relatively minor health impacts. The level of harm associated with long-term nicotine use is about the same as long-term caffeine use. We know this because long-term users of Nicotine Replacement Therapy products, like "the patch" or "the gum" have shown no adverse health effects. This is why these products are now approved for long term use.

The flavourings used in e-cigarette liquid are widely available and are used in many consumer food products. Flavourings are a combination of natural or artificial chemicals. While they are not specifically designed to be used for the purposes of inhalation, we can determine their relative safety by analyzing their components and comparing them to known limits of concern for those chemicals. A study done last year compiled data regarding the chemical components of e-cigarette vapor from numerous studies done and compared the levels of potentially harmful chemicals to established safety levels. The study (which can be found here: <http://www.biomedcentral.com/1471-2458/14/18>). The conclusion from that study:

“Current state of knowledge about chemistry of liquids and aerosols associated with electronic cigarettes indicates that there is no evidence that vaping produces inhalable exposures to contaminants of the aerosol that would warrant health concerns by the standards that are used to ensure safety of workplaces.”

So what can we reasonably conclude from the above?

- Propylene glycol – No concern
- Glycerine – No concern
- Nicotine (if so desired) – No significant concern
- Flavourings – No significant concern

Based on this, it is clear that there is almost no concern that e-cigarette liquid (and consequently vapor) is harmful in any way. Contrast that with tobacco smoke and the known health impacts and we can see that e-cigarette use is expected to be vastly safer to the user. For these reasons, many knowledgeable scientist put the relative safety of e-cigarettes vs tobacco cigarettes at ~99% safer +/- 1%.

Another benefit that is rarely discussed is, if a chemical is found to be potentially more harmful than desired, it can be removed from the recipe. In this way, we can reduce the already minimal potential impacts to even lower levels. It is a feature unique to e-cigarettes, but one that requires testing of the liquid to ensure these components are indeed absent.

One final point I would like to make is regarding formaldehyde. A recent study determined that in certain situations, the quantity of formaldehyde in e-cigarette vapour could exceed the levels found in tobacco smoke. This is often used to “prove” that e-cigarettes are just as bad as tobacco cigarettes. In fact the study tested an e-cigarette at normal use and found that formaldehyde was at levels of no concern. They also test an e-cigarette at unrealistic heating levels, which caused the e-cigarette to dry out and cause the cotton in the heating element to become scorched (which creates the formaldehyde) from the excessive heat. This phenomenon results in an unpleasant burnt taste and is quickly corrected by the user. Remarkably, the study confirmed that the levels (from a properly used e-cigarette) of a potentially harmful chemical were vastly less than tobacco cigarettes.

1.b) Relative Safety of E-cigarettes vs not smoking at all for users

Although we can see that e-cigarettes are expected to be a vastly safer alternative to tobacco cigarettes, what are the expected impacts should a non-smoker decide to use an e-cigarette? Obviously we cannot claim that they are zero-risk, but the use of e-cigarettes can be pleasurable to the user. If the potential e-cigarette user is provided an accurate assessment of the risks, then should they not be allowed to make their own choice? Consumers make informed decisions of this type on a daily basis. “Should I eat McDonalds today or make a salad?” “Should I walk to the store or drive?” “Should I watch the latest episode of Game of Thrones or go to the Gym to exercise?” As adults we are free to make these decisions, and the same should be true of e-cigarettes.

Additionally, as the e-cigarette liquid can be purchased without nicotine, there is little concern that e-cigarettes could act as a gateway to tobacco cigarettes. This is something I will discuss in a further letter.

2.a) Relative Safety of E-cigarettes vs tobacco smoke for bystanders

We know that the level of harm experienced by bystanders from second hand smoke is approximately 10% of the harm experienced by the user. This is demonstrated by the rates of smoking related death and disease from second hand smoke being approximately 10% of the rates of smokers. We also know that a significant portion of second hand smoke exposure is from sidestream smoke, i.e. the smoke that comes of a lit cigarette, even when not being puffed on. E-cigarettes do not experience this phenomenon as the vapour is created by activating the device when puffing on it. Based on this we can estimate that the level of exposure to bystanders from e-cigarettes vapour results in a level of harm approximately 5% of the level of harm experienced by the user. As we have previously estimated that e-cigarettes are 99% safer than tobacco cigarettes, then we can estimate that e-cigarette vapour to bystanders is approximately 99.95% safer than tobacco smoke.

2.b) Relative Safety of E-cigarettes vs no smoke at all for bystanders

As shown above, the level of harm for exposure to e-cigarette vapour for bystanders is very low. It is reasonable to assume that it would not have any health impacts to those exposed. There is no evidence to support a ban on indoor use, based on expected health impacts.

Indoor smoking bans were implemented because it was clearly shown that second hand smoke was impacting non-smokers. We have no such evidence and no reason to believe that e-cigarette vapour would be harmful enough to warrant indoor use bans.

But should that mean that non-vapers be denied the choice of being exposed to e-cigarette vapour? Why don't we let the establishments decide if vaping is allowed in their building then? If people are uncomfortable with the appearance of the vapour, they can complain to the owner of the establishment. If the owner feels that it is impacting his business, he can then set his/her own rules. As it is not a decision based on "health", it could be based on "economics". This is the only reasonable conclusion based on the evidence.

Thank-you for taking the time to consider these points when deciding on the proposed regulations for e-cigarettes. I have not included references in this letter, to avoid it becoming too cumbersome. If you wish, I could send links to studies and reports supporting my position.

Thanks,

Stanley Pijl

Further reading:

Electronic Cigarette Trade Association of Canada – www.ectaofcanada.com

Tobacco Harm Reduction Association of Canada – www.thra.ca

The Consumer Advocates for Smoke-free Alternatives Association – www.casaa.org