**Summary of Risk Assessment Conducted Pursuant to subsection 83(1) of the *Canadian Environmental Protection Act, 1999***

New Substances Notification 20097: 2-Bromo-3,3,3-trifluoroprop-1-ene (Chemical Abstracts Service Registry Number 1514-82-5)

**Regulatory decisions**

Under the provisions for Substances and Activities New to Canada in Part 5 of the *Canadian Environmental Protection Act, 1999* (CEPA), and pursuant to section 83 of the Act, the Minister of the Environment and the Minister of Health have assessed information in respect of the substance and have determined that it is not anticipated to enter the environment in a quantity or concentration or under conditions that have or may have an immediate or long term harmful effect on the environment or its biological diversity, constitute or may constitute a danger to the environment on which life depends, or constitute or may constitute a danger in Canada to human life or health.

**Substance identity**

The notified chemical is 2-bromo-3,3,3-trifluoroprop-1-ene (Chemical Abstracts Service Registry Number[1] 1514-82-5).

**Notified and potential activities**

The substance is proposed to be imported into Canada in quantities greater than 10 000 kg/yr for the notified use as the main component in fire extinguishers used within the aviation industry on board aircraft. Potential uses may include other non-residential fire extinguisher applications such as commercial, electronic, and military uses as well as residential applications.

**Environmental fate and behaviour**

Based on its physical and chemical properties, if the substance is released to the environment, it will tend to partition to air. The substance is expected to be persistent in this compartment based on its free radical reaction rate coefficient resulting in an expected half-life > 2 days. The substance is not expected to bioaccumulate because volatility will prevent the aquatic exposure necessary to accumulate in aquatic organisms.

**Ecological assessment**

No releases to the aquatic environment are expected and any amount released to water would rapidly volatilize given the very high vapour pressure of the substance (> 13 332 Pa). As such, exposure of aquatic life (i.e., fish, aquatic invertebrates, algae) to the substance is not expected. Based on the available hazard information, the substance has moderate acute toxicity to fish and aquatic invertebrates (median lethal concentration ($LC_{50}$) and median effective concentration 1-100 mg/L), and

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low chronic toxicity to algae (no-observed-effect concentration >10 mg/L). A predicted no-effect concentration was not calculated given the low potential for exposure.

As the substance will partition into the atmosphere, the concentration in the aquatic compartment was not predicted. However, assessments of photochemical ozone creation potential, ozone depletion potential and global warming potential were conducted. In each case, the impact is considered low. No potential activities were identified which would pose an environmental risk.

Based on the lack of environmental impact as a result of its presence in the atmosphere including the lack of abiotic impacts, the substance is unlikely to cause ecological harm in Canada.

**Human health assessment**

Based on the available hazard information, the substance has a low acute toxicity by the inhalation route ($LC_{50}$ >2500 ppm) and moderate subchronic toxicity following repeated inhalation doses in mammalian test animals (90-day no-observed-adverse-effect concentration (NOAEC) between 50-250 ppm). The substance has a moderate reproductive/developmental toxicity following repeated inhalation doses in mammalian test animals (NOAEC 50-250 ppm). It is not mutagenic or clastogenic *in vitro*. Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used as the main flame retardant component in fire extinguishers used within the aviation industry on board aircraft, direct exposure of the general population is not expected due to the specialized nature of the use. Indirect exposure of the general population from environmental media is not expected given the specialized use of the substance, which results in little or no release to the environment. Potential uses of the substance include other non-residential as well as residential fire extinguisher applications, where direct and indirect exposure of the general population is expected to be at levels that do not pose a concern, similar to that of the notified use.

Based on the low potential for exposure, the substance is not likely to pose a significant health risk to the general population, and is therefore unlikely to be harmful to human health.

**Assessment conclusion**

When the substance is used as notified or for other identified potential activities, it is not expected to be harmful to human health or the environment according to the criteria under section 64 of the Act.

A conclusion under CEPA, on this substance, is not relevant to, nor does it preclude an assessment against the hazard criteria for Workplace Hazardous Materials Information System that are specified in the *Controlled Products Regulations* or *Hazardous Products Regulations* for products intended for the workplace.