Fragrances:
a no-non-scents approach

Version 1.0

Increasingly, workers are becoming sensitized to chemicals in the environment. For many workers, attending conferences and being exposed to perfumes can pose a serious health risk. In the interest of the health and safety of the sisters and brothers whose health may suffer from these exposures, we ask that conference participants refrain from the use of scented products such as perfume and aftershave while in attendance at the conference.

— Ontario Federation of Labour Allergy Alert

Alerts such as the one shown above are becoming more and more prominent in workplaces, at conferences, conventions, doctor's offices and public places. As more information becomes available labour organizations, employers, government agencies and others are taking action to protect those with fragrance sensitivities.

If a co-worker or friend tells you that your perfume is making them ill — believe them. It probably is. But, do not take offence. Their reaction is not to you, personally, but to one or more of the hundreds of chemicals present in the perfume. Whether your perfume or cologne is expensive or inexpensive, pleasant smelling or malodorous, the chemicals it contains may cause serious health problems for others. And it could cause future problems for those wearing it.

What are fragrances?

People have been using perfumes for hundreds of years, however fragrance sensitivity is a relatively new phenomenon. Before the 20th century, fragrances were extracted directly from plants and animals. Today more than 80 to 90 per cent of fragrance materials are synthetic compounds derived from various petrochemicals.

Fragrances are generally complex mixtures of chemicals formulated to have a specific or pleasant odour. The intensity of odour and how long it lasts is not necessarily associated with the level of fragrance in the product. The fragrance portion of a product may vary from less than one per cent to 25 to 30 per cent of the product. Formulations changed in the 1980s, with the development of very strong synthetics that can be used at higher levels. In modern fragrance formulations, three to five materials may make up to 80 per cent of the formula. These mixtures are powerful and tenacious when sprayed or applied.

Fragrance chemicals are *volatile* by nature meaning they disperse into the air quickly and linger for a long time. The result is a complex mixture of chemicals that is constantly changing as it comes into contact with other substances. In indoor environments where air exchange is poor, the problems are increased.

What types of products contain scents?

Perfumes are considered the most concentrated form of fragrance, however fragrances can be found in products such as soaps, shampoos, deodorants, hairsprays, cosmetics, household and industrial cleaners, air fresheners, drugs and even the food we eat. There are more than 1,000 body fragrances including colognes, perfumes, and toilet waters on the market today.

It is common for individuals reporting reactions to any of the above scented products to also report adverse reactions to other substances such as:

- Building materials that give off volatile organic compounds;
- Combustion exhausts (from cars, trucks, etc.)
- Cigarette smoke.

It is important to remember some products, which claim to be "unscented" or "fragrance-free" may have only masked the scent by use of an additional chemical. Caution must be used to research the product carefully.

What are the routes of transmission?

Fragrance can enter the body through numerous routes such as:

- Skin absorption;
- Inhalation;
- Ingestion; and
- Olfactory (sense of smell) pathways.

The purpose of fragrance in a product is to impart odour to it. To be detected, odour materials must disperse into the air. From the air the chemicals are inhaled into the airways and lungs and enter the blood stream. Once in the bloodstream they are distributed to other organs. Fragrances also go directly to the brain and the nervous system via the olfactory pathways. In addition, most cosmetics containing fragrance are directly applied to the skin, as are perfumes and colognes, which eventually enter the bloodstream. Ingestion is another route of exposure because many of the same materials are used as flavours in foods (eg. lemon or strawberry-flavoured candy).

What are the health effects of scented products?

Problems regarding fragrances have emerged with increased use and exposure. As a result there are concerns for both those who use scented products and those exposed to others' scents. Many of the identified concerns such as skin allergies are well recognized. Other concerns, such as impact on respiratory health, and the presence of phthalates (plasticizers) as possible hormone disruptors are emerging issues in which there may be conflicting opinions.

People who suffer from multiple chemical sensitivities (MCS) believe that exposure to fragrance, triggers various symptoms to the point where they are often incapacitated or must forgo routine activities including work, to avoid exposure. Researchers report that chemicals found in many scented products may also contribute to the development and exacerbation of sick building syndrome.

Symptoms

Fragrance sufferers report symptoms such as, shortness of breath/wheezing, dizziness, headaches (including migraine), nausea, muscle pain, fatigue, difficulty concentrating, depression, confusion, loss of appetite and cold-like symptoms after exposure to scented products. The severity of symptoms can vary. Some people report mild irritation while others are "incapacitated".

Skin

Fragrances have long been recognized as skin allergens and irritants. In the workplace fragrances can be found in soaps, cleaners, and other products, which can cause skin problems such as dermatitis in fragrance sensitive workers. A conservative estimate indicates that one to two per cent of the general population has a skin allergy to fragrance. An analysis of patient treatment at St. Michael's Hospital in Toronto found some 1,670 patients were treated for dermatitis. Half of these dermatitis cases were occupationally related — 5.4 per cent were related to fragrance exposure. Office workers and laundry staff were among those most at risk.

WHSC WORKERS HEALTH & SAFETY CENTRE
Training for What Matters Most

Information Bulletins for health, safety and environmental representatives

Resource Lines

Respiratory system

More research is needed on the effects of perfumes and fragrances on the respiratory system. However, in general, fragranced products are recognized as respiratory irritants. Fragrances can induce or worsen respiratory problems such as asthma, emphysema, bronchitis, and allergies because of their irritant effect. In a 1986 survey of asthmatics, researchers found that perfume and/or colognes triggered an attack in 72 per cent of the subjects questioned. According to the Institute of Medicine (IOM), fragrances are in the same category as second-hand smoke for triggering and exacerbating asthma in school-aged children and adults. Some researchers hypothesize that exposure to fragrance may actually cause occupational asthma.

Other health concerns

The National Academy of Sciences reports that 95 per cent of the chemicals used in fragrances are synthetic compounds derived from petroleum. They include benzene derivatives, aldehydes and many other known toxics and sensitizers — capable of causing cancer, birth defects, central nervous system disorders and allergic reactions. Examples of chemicals found in fragrances that are known to cause cancer and birth defects are:

- Methylene chloride;
- Toluene;
- Methyl ethyl ketone and;
- Benzyl chloride.

Fragrances can also impact the brain. Some of these effects are immediate and transitory while others can be long term. For example, some research indicates that fragrance materials can act on receptors in the brain and affect frame of mind in a similar manner as alcohol and tobacco. Synthetic musk compounds found in perfumes have neurotoxic properties, bio accumulate in human tissue and are found in breast milk.

Environmental concerns

Fragrances are accumulating in the environment at measurable levels in outdoor air, waterways and aquatic wildlife. Once fragrances are in the air they break down, mix with other pollutants and form new compounds that are often more irritating or allergenic than the original substance. A large portion of household cleaners and laundry products containing fragrances also end up in wastewater. However, most wastewater treatment methods do not filter out fragrance compounds such as musk. These materials end up in rivers and streams from sewage treatment plants. Eventually they accumulate in aquatic wildlife and contaminate the food chain. They are often overlooked as a source of pollution.

What does the law say?

The fragrance industry is unregulated and therefore is not legally required to test their products or guarantee their safety. As a result, more than 80 per cent of the 4,000 chemical ingredients in use in the industry have not been tested to determine if they are toxic. In addition, fragrance manufacturers are not required to list each ingredient contained in the formula on the product labels. As most products containing fragrance are considered "consumer products" they are excluded from the Workplace Hazardous Materials Information System (WHMIS) and its provisions. This makes it difficult for individuals to pinpoint the specific chemicals that may be problematic to them and to determine their potential health effects.

Nonetheless, in the absence of specific legislation addressing the hazards of fragrance employers are still required under the general duty clause of the *Occupational Health and Safety Act* to "take every precaution reasonable in the circumstances for the protection of a worker".

What can be done in the workplace?

Dealing with fragrance sensitivity in the workplace can be difficult because it is such a personal issue. However, through worker education and the implementation of an effective scentfree workplace policy and alternative control strategies, the impact of this hazard can be greatly reduced or eliminated altogether.

Scent-free workplace policy

By taking necessary precautions now to protect workers from exposure to fragrances the employer can prevent development of sensitizations in future. The most effective strategy is to practice the **precautionary principle** and declare the workplace a scent/ fragrance-free environment. The joint health and safety committee should recommend the drafting of a scent-free workplace policy. When developing such a policy the following should be considered:

- Identify problem areas;
- Form a committee (representing management and workers) to oversee project;
- Create a draft policy, review it and then implement it;
- Inform workers of the policy;
- Provide hazard awareness training for workers;
- Review available safety data sheets for products currently used and those being considered for use;
- Make policy applicable to all workplace parties;
- Post policy in prominent places; and
- Review policy regularly.

A program implementing the policy should contain the following strategies:

- Maintain good indoor air quality;
- Use only unscented cleaning products;
- Provide scent-free meeting rooms/ rest rooms;
- Avoid using scented products in workplace (eg. air fresheners, scented candles, hairsprays etc.);
- Post signs when major cleaning/ painting/waxing will occur;
- Post signs asking public/customers/ clients not to use perfumes/colognes when visiting the facility;
- Implement a scent-free policy for meetings/conferences/workshops.

Essential oils

Increasingly, individuals are turning to essential oils as a natural substitute for perfumes and scented products. However, caution should be practiced when using essential oils. Some oils may cause skin irritation, phototoxicity (skin pigmentation, and irritation when exposed to direct sunlight), and sensitization. Others are inherently toxic and should only be used in two-week intervals. These include white camphor, cinnamon, aniseed, eucalyptus and others.

Also, adverse reactions may occur in pregnant workers (eg. rose, cinnamon leaf, citronella, etc.) and individuals with sensitive skin (eg. coriander, geranium, jasmine, vanilla etc.) high blood pressure (eg. rosemary, hyssop, thyme etc.), epilepsy (sweet fennel, hyssop, rosemary, sage), and diabetes (eg. angelica).

It is important to refer to an aromatherapeutic reference book to check the hazard information of each species and its proper usage before using essential oils.

NOTE: For more information on the hazards of fragrances and related issues contact a WHSC training services representative near you.

WHSC WORKERS HEALTH & SAFETY CENTRE
Training for What Matters Most

Resource Lines

Published by the
Workers Health & Safety Centre

675 Cochrane Drive, Suite 710
East Tower, Markham,
Ontario L3R 0B8

416-441-1939
Toll free: **1-888-869-7950**

whsc.on.ca

contactus@whsc.on.ca

Executive Director: **Andrew Mudge**

Director, Policy and Programs:
Loretta Michaud

Editor: **Charlotte McMorrow**

Submissions are encouraged.

@WHSCtraining

cope:343