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Asthma in the workplace: Bakery and pastry-making

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ASTHMA IN THE WORKPLACE

BAKERY AND PASTRY-MAKING
PREVENTION FACT SHEET
RF-532



GET THE FACTS

AND WORK SMARTER

If you're in the baking or pastry-making profession, there are health risks you should know about. Getting the facts will help you work smarter and avoid certain practices that could lead to occupational asthma and rhinitis.

Flour dust, for instance, is one of the main risk factors that can cause or aggravate these respiratory diseases.

READ THE SAFETY DATA-SHEETS FOR THE PRODUCTS YOU USE. MAKE SURE YOU UNDERSTAND WHAT'S IN THEM.

AN IMPORTANT STUDY

A study of 222 pastry students in Québec revealed that, 12 to 18 months after they started their training:

- 16.1% have symptoms of rhinitis and conjunctivitis in the presence of flour.
- 4.3% have developed an allergic sensitization to flour.
- 1.6% have both an allergic reaction to flour and symptoms of rhinitis and conjunctivitis in the presence of flour.

* Gauthier, D. et al, Rapport IRSST R-494, 2007

FIND OUT

ABOUT ASTHMA

Asthma is a chronic respiratory disease that makes breathing—especially exhaling—difficult.

Asthma usually results from allergies to certain substances in your environment. Its main symptoms are coughing, shortness of breath, wheezing and tightness in the chest. Asthma can also be accompanied by symptoms of rhinitis and conjunctivitis.

Asthma in the workplace can be:

- Caused by exposure to allergenic or irritant substances found in the learning or work environment; or
- Aggravated in somebody who is already asthmatic by these irritant substances or physical factors (e.g., extreme ambient temperatures).

In both cases, the symptoms get worse when the person performs training or work-related tasks that carry a risk of exposure. They decrease or disappear outside the learning or work environment.

ABOUT RHINITIS

Rhinitis is a respiratory disease that causes inflammation of the mucous membranes in the nose, stuffy nose, runny nose and eyes, and sneezing.

UNDERSTAND

THE RISK FACTORS

As a bakery and pastry student, you perform very similar tasks to those in a professional or semi-industrial environment. The commercial products and raw materials you use could cause or aggravate asthma.

Because flour, among other ingredients, is present at almost every stage of production, it is the main source of dust that irritates or sensitizes the respiratory tract. You could also be directly exposed to a chemical substance through skin contact.

Several ingredients, such as spices, improvers and cocoa, can carry a health risk.



Weighing and adding ingredients

Mixing the ingredients with flour

Flouring the work surface

Processing the dough: turning, flouring, dividing

Cleaning the equipment

Cleaning the work surfaces

IT IS IMPORTANT TO UNDERSTAND WHICH ARE THE HAZARDOUS TASKS AND POTENTIALLY-HARMFUL SUBSTANCES, AND HOW TO CONTROL EXPOSURE.



CHEMICAL HAZARD

Inhalation of irritant or sensitizing dusts	●	●	●	●		
Inhalation of irritant or sensitizing mists					●	●
Skin contact with irritant or sensitizing substances	●	●	●	●	●	●

EXAMPLE OF PRODUCTS

Flour (wheat, spelt, buckwheat, etc.)	●	●	●	●	●	
Fermentation improver	●	●		●	●	
Egg		●		●	●	
Antiseptic cleaner						●

EXAMPLE OF SUBSTANCES

Flour proteins	●	●	●	●	●	
Fungal enzyme: alpha amylase (Aspergillus oryzae)	●	●	●	●	●	
Natural enzymes: alpha and beta amylase	●	●	●	●	●	
Egg proteins		●		●	●	
Quaternary ammoniums						●

MEANS OF CONTROL

Substitution					●	●
Work method	●	●	●	●	●	●
Capture at source	●	●	●	●	●	●
General ventilation	●	●	●	●	●	●
Respiratory protection	●	●	●	●	●	●
Skin protection	●	●	●	●	●	●

Informing and training students, apprentices and employees on the risks of exposure to substances in their learning or work environment, the sources of emission, the most hazardous tasks, methods of control (including work practices and methods) and personal protective equipment are key to controlling exposure.

PROTECT

YOURSELF RESPONSIBLY

Protecting your respiratory tract

Use a respirator if you cannot control exposure any other way.

The N95 filtering half-facepiece respirator is recommended to protect against dust. You could also use other respirators depending on the intensity of exposure, the nature of the task and the degree of effort.

All respirators have a protection factor (PF) that indicates how effective they are and that reflects the theoretical concentration of the contaminant in the environment compared to that inside the mask. So, a factor of 10 indicates that the concentration inside the respirator is 10 times less than that in the learning or work environment.

For a respirator to offer appropriate protection against a particular substance, you have to look at the permissible exposure value (PEV) for that substance, as stated in the Regulation on occupational health and safety (ROHS).

Choosing a respirator to suit the intensity of dust you are exposed to*

Intensity	Types of respirators*	PF
Under 10 times the PEV	N95 filtering half-facepiece Half-facepiece with N95, P95 or P100 filter cartridges	10
Over 10 times the PEV	Full-facepiece with N95, P95 or P100 filter cartridges Powered air-purifying respirator (PAPR) with HEPA filter cartridges	100

* These recommendations do not apply to all work situations. You must check the respirator's efficiency with the manufacturer or with the person responsible for the respiratory health program.

The teaching institution must also set up a training program so that apprentices know how to use a respirator, its limitations and maintenance, and arrange for a personal fitting to adjust the respirator in accordance with the regulations in Quebec.¹

A surgical mask is not a respirator



Unlike the N95 filtering half-facepiece respirator, a surgical mask is not designed to filter dust. It is not effective or airtight enough to meet regulations.

Protecting your skin

As you go about your training or professional work in baking and pastry-making, irritant or sensitizing substances (such as flour and quaternary ammoniums) may contact your skin. Wearing nitrile gloves will reduce this type of risk. However, they are only appropriate for some mixtures. So, it is important to check how effective your choice of protection is with the manufacturer before adopting it.

¹ www.irsst.qc.ca/fr/_publicationirsst_862.html

CONTROL

THE RISK TO YOUR HEALTH

Substitute products

First, consider replacing a potentially harmful product with one that reduces or eliminates the risk.

Some examples are:

- Replace the quaternary ammonium family of disinfectants with ammonium-free equivalents;
- Add granulated, instead of powdered, improvers and other ingredients to your mixtures.

Work practices

Good work practices and habits can prevent exposure or help to reduce the duration and intensity of exposure. Some examples are:

- Work on a surface that is free of flour;
- Add the water to the mixer before the flour for kneading;
- Knead at low speed;
- Stay away from the source of the contaminant and its trajectory;
- Keep the premises clean, after the task or every day, depending on the level of production;
- Use a high efficiency particulate air (HEPA) filter to avoid recirculating allergens.

Capture at source

This reduces exposure to the dust generated by equipment. It protects you and the people near your workstation.



It is better to sprinkle flour in front of a lateral exhaust hood.

Using a mixer and kneading trough equipped with an exhaust system or a tight-fitting cover are also effective solutions for reducing exposure to allergens.

Ventilation

General, natural or mechanical ventilation reduces the ambient level of substances and so reduces direct and secondary exposure to allergenic substances associated with hazardous tasks.



BE INFORMED—BE CAREFUL

Other health and safety risks related to the bakery and pastry-making profession*

Catégorie	Risk	Methods of control	Information
Ergonomics	Repetitive movement	Automate tasks (use dough sheeter)	INRS
Safety	Burns	Protect your skin	
Physical	Noise	Wear ear-plugs and ear muffs	CSST
Security	Use of machines	Install guards, use protective devices and perform lock-out procedures	IRSST CSST

* This list is not exhaustive and does not apply to all workplaces.

TO LEARN MORE

Guide d'utilisation d'une fiche signalétique, CSST

http://www.csst.qc.ca/portail/fr/publications/DC_200_338_5.htm

Asthme CSST

<http://www.asthme.csst.qc.ca/>

IRSST

<http://www.irsst.qc.ca>

REPTOX

<http://www.reptox.csst.qc.ca/>

Québec Lung Association

<http://www.pq.lung.ca>

Center for Asthma in the Workplace

<http://asthma-workplace.com/en>

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Breton, C. *Prévention des allergies respiratoires en boulangerie-pâtisserie (TC 87)*, Document pour le médecin du travail, Institut national de recherche et de sécurité (INRS), 2002, 90 : 111-129.

<http://www.inrs.fr/htm/tc87.pdf>

Lara, J. and Vennes, M. *Guide pratique de protection respiratoire*, IRSST, R-319, 2002, 56 pages.

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