

Particle pollution in daycares

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Pollution sources

In daycares, pollution with health-hazardous particles comes from three sources:

- 1) Cooking.
- 2) Candles, oil lamps, etc.
- 3) Pollution from outdoor air.

Heaters with filaments and some vacuum cleaners, etc. can also contribute to indoor pollution, but are typically less significant than the abovementioned sources. Particle pollution must not be confused with dust (larger particles), which typically originates from skin cells, airborne dust, pollen or dust from the building itself, wear and tear of furniture, etc.

Particle pollution increases the risk of cancer, cardiovascular diseases, and serious respiratory disorders such as asthma, bronchitis, and chronic bronchitis, etc. Particle pollution can quickly disperse to the rest of the daycare. Therefore, it is important to always keep doors closed to the room where the pollution is generated, e.g., the kitchen when cooking.

One in five daycare children has a respiratory disorder and is therefore particularly sensitive to particle pollution.

1) Cooking

Frying, baking, roasting, etc., without the use of a powerful cooker hood, generates high levels of indoor air pollution that can make both children and the staff seriously ill. Even if the food does not burn, a high level of particle pollution is generated.

Always use a powerful cooker hood on the high setting with an outside exhaust discharge - always use the toaster under the cooker hood on the high setting. Do not use tabletop ovens and cupboard ovens that are not under the cooker hood. Start the cooker hood 5 min. before you start cooking and let it run for 10 min. after you finish cooking (new cooker hoods with timers make this easy). Buy a low-noise cooker hood, if necessary, with an external motor if the cooker hood is too noisy. Remember to clean the filters in the cooker hood often to maintain efficiency.

Always close the door to connecting rooms when you cook, so that cooking fumes do not disperse to the rest of the daycare.

If it is not possible to install a cooker hood with outside exhaust discharge, always open the window in the kitchen while cooking and buy a recirculation hood (be sure to change the filter often). As a supplement, air purifiers can be an emergency solution. Read more here: <https://godtindeklima.nu/wp-content/uploads/2023/12/air-purifiers-capability-to-reduce-exposure-to-pollution-generated-in-private-homes-med-appendix.pdf>

2) Candles, oil lamps, etc.

Candles, oil lamps, etc. generate high indoor air pollution, which can pose a particular problem that can cause illness in both children and adults. The level of pollution is high regardless of whether the candles are made from real candle wax or from other materials.

The solution is to replace candles, etc. with realistic battery driven candles or other cozy electric lighting – or introduce completely different and cozy rituals and games.

If you continue using candles for shorter periods on special occasions (birthdays and Christmas), close the door to connecting rooms while the candles are lit and aerate thoroughly for 5 minutes with through draught after you blow out the candles.

3) Pollution from outdoor air

Outdoor air can contain harmful particles from bonfires, road traffic, wood burning, diesel trains, etc. that occur close to the daycare, and this can significantly pollute the indoor environment when windows and doors are open, or if the daycare has mechanical ventilation that sucks in the pollution. Closed, new windows and doors are usually tight and thereby keep pollution out.

Read more here: <https://en.godtindeklima.nu/wp-content/uploads/sites/2/2023/12/wood-smoke-in-houses-with-mechanical-ventilation-1.pdf>

If the daycare is next to a trafficked road, keep windows and doors facing the road closed during rush hour. Keep windows and doors closed if the outside air smells like bonfire, wood smoke, or smoke from diesel trains, etc. If the windows are not tight, replace the windows or buy and install sealing strips from a hardware store.

If the daycare has mechanical ventilation, replace the filter with a better filter (HEPA or EPA filters) and, if necessary, have an activated carbon filter installed in the ventilation system, if it is technically possible. Note that the filters must be changed regularly. However, this should only be done if you are close to a trafficked road or often smell bonfire smoke, wood smoke or diesel exhaust in the air entering from the ventilation system. Change the filters when the air from the mechanical ventilation starts smelling again.

Talk to your neighbour about finding a good solution if you smell the neighbour's wood smoke. If that does not help, or if the air outside or the intake from the ventilation system smells like bonfire, wood smoke, diesel, etc., then contact the municipality.

An air purifier can be used as an emergency solution. Read more in the link further above.

Have measurements made

We can help with measurements and assessments of the indoor environment, and solution options to get a better indoor environment. Contact the Head of secretariat Kaare Press-Kristensen: kaare@godtindeklima.nu / tel. (+45) 22 81 10 27.

More on indoor air pollution and solutions:
www.healthyindoorenvironment.org