

PRESS RELEASE

Maisons-Alfort, 16 November 2021

Nitrous oxide poisoning on the increase

Nitrous oxide, commonly known as "laughing gas", is increasingly being misused for recreational purposes. Following the reports produced in 2019, ANSES and the ANSM have published new figures on the cases of misuse reported to poison control centres (PCCs) and to centres for evaluation and information on drug dependence and addiction monitoring (CEIP-As). These figures confirm a clear increase in cases of poisoning in young people in 2020. This type of poisoning can have serious, long-lasting neurological consequences, especially in regular users.

Nitrous oxide is a gas used in medical applications for pain relief and anaesthesia. It is subject to drug regulations. Used in industry as an oxidiser, it is also found in compressed form in everyday consumer products, such as the cartridges for kitchen siphons. It is therefore subject to European regulations on food additives and processing aids. This means that it is freely available in supermarkets or online in a variety of forms (cartridges, capsules or cylinders).

In recent years, cases of misuse have primarily concerned the cartridges from kitchen siphons, with the gas being inhaled to obtain a euphoric effect. Users are primarily young adults, particularly students. More recently, cases of misuse involving teenagers (secondary school pupils) have been reported. The misuse of nitrous oxide is not without risk.

Known toxic effects of which consumers are often unaware

- Immediate risks:

Asphyxiation caused by lack of oxygen, loss of consciousness, cold burns from the gas expelled by the cartridge, impairment of the coughing reflex (risk of choking), disorientation, dizziness and loss of balance.

- Risks in the event of use on a regular basis and/or at high doses:

Owing to the action of the gas on the central nervous system, repeated and frequent consumption can cause side effects such as headaches and dizziness, as well as more serious

effects such as heart rhythm disorders, a risk of asphyxia, mental disorders and neurological damage.

Misuse that mainly concerns young people

The new figures published by the two agencies point to an increase in the misuse of nitrous oxide: 134 cases reported to poison control centres in 2020 versus 46 in 2019, and 254 reports to addiction monitoring centres in 2020 versus 47 in 2019.

The vigilance data produced by the CAPTV and CEIP-A networks enable better characterisation of the type of effects, consumption practices and user profiles. These data confirm the trends observed since 2017 with:

- **Young adults** (aged 21-22 on average) remaining the group primarily concerned by intoxications, but an increase in the proportion of minors (20% of cases reported to PCCs in 2020 versus 13.6% in 2019; 13.4% of cases reported to CEIP-As in 2020 versus 8.5% in 2018/2019);
- Consumption becoming **more regular**, i.e. not just at social gatherings;
- Significant variations in the quantities consumed: from a few cartridges a day to several hundred. The 2020 study also revealed an increase in consumption using **cylinders**, which can contain the equivalent of around a hundred cartridges (3% of cases reported to PCCs in 2019 versus 20% in 2020; almost one-third of cases reported to CEIP-As in 2020);
- A significant proportion of **cases of abuse or drug dependence** (72.3% of notifications reported to CEIP-As), relating to daily use and/or high consumption (≥ 20 cartridges per occasion or per day);
- An **increase in cases of neurological and neuromuscular disorders** (69.2% of notifications reported to CEIP-As in 2020 versus 59.6% in 2018/2019 and 76.2% of effects reported to PCCs in 2020 versus 71.2% between 2017 and 2019). In some cases, serious effects were observed, including subacute combined degeneration of the spinal cord, myelopathy leading to paraesthesia, gait and balance disorders, convulsions, tremors, and sometimes sequelae requiring a stay in a re-education unit;
- **Psychiatric disorders** (34.9% of notifications reported to CEIP-As) such as panic attacks, delirium, confusion, amnesia, agitation, irritability, insomnia, etc.;
- **Cardiac effects** (8.4% of reports to CEIP-As) such as tachycardia, high blood pressure, bradycardia and chest pain.

Several road accidents, serious in some cases, have also been reported.

Raising awareness of the risks of intoxication and the necessary action

In the light of this alarming finding and the continuing underestimation of the risk by consumers, health agencies are once again pointing out the risks associated with the misuse of nitrous oxide, in both teenagers and adults.

Their recommendations are as follows:

- In the event of an emergency, call 15 (in France) or 112;
- In the event of worrying or unusual symptoms associated with the misuse of nitrous oxide, contact the nearest [Poison control centre](#) or [Addiction monitoring centre](#);
- Report any serious cases relating to the abuse, dependence or misuse of nitrous oxide on the website signalement-sante.gouv.fr;
- In the event of difficulty in controlling and/or stopping misuse and consumption, consult a doctor or an organisation with specialist expertise in managing addictions, such as a "young consumers' consultation" unit. This free, confidential service will listen to users, advise them and, if necessary, refer them to another entity. All relevant information is available on: www.drogues-info-service.fr

Stricter supervision of nitrous oxide sales

On **1 June 2021**, France [passed](#) an act to prevent the misuse of nitrous oxide.

This act **makes it illegal to sell or supply nitrous oxide to a minor**. Shops may request proof of age from customers seeking to buy nitrous oxide. Further, websites must inform users of this ban on sales to minors before allowing purchases of nitrous oxide. The act also prohibits the sale or supply of nitrous oxide by bars, discotheques, student parties, etc. or by tobacconists. A warning must appear on all packaging, indicating the dangers of inhalation. Further details will be provided in a decree that is currently at the preparation stage.

Find out more:

- The ANSM report "[Addiction monitoring review - nitrous oxide - 2020 data](#)"
- The full ANSES report "[Nitrous oxide: review of cases reported to poison control centres in 2020](#)"
- The joint DGS/ANSM/ANSES [press release](#) of 9 July 2020
- The Vigil'Anses article: "[Nitrous oxide: increasing misuse associated with serious neurological consequences](#)"

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