



News release

from the EU drugs agency in Lisbon

RECREATIONAL USE OF NITROUS OXIDE — A GROWING CONCERN FOR EUROPE

No laughing matter — new report shows rise in recreational use of nitrous oxide

(21.11.2022, LISBON **EMBARGO 00.01 WET/Lisbon | 01.01 CET/Brussels**) A rise in the supply and recreational use of nitrous oxide ('laughing gas') is the focus of a new report out today from the **EU drugs agency (EMCDDA)**. The publication — ***Recreational use of nitrous oxide: a growing concern for Europe*** — points to the risks and harms associated with the drug, which is now widely available, cheap and popular among some young people ⁽¹⁾.

Nitrous oxide has a variety of legitimate medical, industrial, commercial and scientific uses (e.g. as a food additive or anaesthetic in medicine). For over 200 years, it has also been used for its psychoactive effects, including feelings of euphoria, relaxation and detachment ⁽²⁾. In the last decade, there has been a large increase in its recreational use in many regions of the world. In some European countries, particular concerns have been raised since 2017–18, when the drug became more widely available and in larger quantities.

'The growing popularity of nitrous oxide might be explained to some extent by its easy availability, low price, short-lived effects and a general perception by users as a relatively safe drug', states the report.

The analysis examines the current situation, risks and responses to the recreational use of the gas in Europe and reviews its chemistry, pharmacology and toxicology. Seven case studies are presented in the report from: **Denmark, Ireland, France, Lithuania, Netherlands, Portugal** and the **United Kingdom** ⁽³⁾.

Another key factor linked to the increased recreational use of the gas is the widespread availability of small 8-gram cartridges of nitrous oxide (used to fill balloons from which the gas is inhaled). These cartridges — commonly used as an aerosol propellant to make whipped cream — are inexpensive and easy to buy from legitimate sources, such as convenience stores, supermarkets and online suppliers.

But suppliers have also started selling larger cylinders (15 kg) of the gas, deliberately targeting the recreational market. This makes the gas significantly cheaper and is seen to promote wider, heavier and more regular use. In some areas, social media plays an important role in advertising and selling the drug.

The report notes that: 'a profitable and expanding supply chain has developed, with specialised internet stores directly promoting the gas for its recreational use or offering it under the guise of its use to make whipped cream.'

Negative health effects: poisonings, burns and nervous system damage

'As the number of people using nitrous oxide has grown, so too has the number of poisonings', states the report. These poisonings, although still relatively small in number, tend to be associated with heavier or more frequent use. The report shows a small but significant rise in reports of poisonings to poison centres. In **Denmark**, cases rose from 16 in 2015 to 73 in 2021. In **France**, 134 cases were reported in 2020 — up from 10 in 2017. Meanwhile, in the **Netherlands**, cases rose from 13 in 2015 to 144 in 2020.

Many of the cases reported to poison centres from 2017 onwards involve varying degrees of damage to the nervous system (neurotoxicity) as a result of the irreversible inactivation of vitamin B12 in the body (an essential vitamin for healthy nerve functioning). Other concerns include severe frostbite (burns caused by exposure to the

freezing gas released from the container) and lung injuries, typically caused by larger cylinders due to high pressure. In addition, car accidents involving the gas have also significantly increased in at least one country (the Netherlands).

Nevertheless, the report stresses: 'It is important to recognise that the vast majority of people do not use nitrous oxide. Those that do typically use relatively small amounts infrequently'.

EMCDDA Director Alexis Goosdeel says: 'The rise in the recreational use of nitrous oxide in some parts of Europe is a cause for concern. There is a general perception among users that inhalation of nitrous oxide is safe. Yet we see that more frequent or heavier use of the gas increases the risk of serious harms, such as nervous system damage. It is therefore important to avoid normalising and unintentionally promoting its use. Targeted interventions and further research are needed to increase understanding of the risks and reduce harms'.

Responding to the problem: need for closer monitoring

'Our understanding of use, risks and effective responses is limited, partly because this level of recreational use is relatively new', states the report. In this context, the monitoring of nitrous oxide needs to be strengthened and further research is needed in areas such as epidemiology, pharmacology, toxicology, supply and the effectiveness of treatment and responses.

Any response measure needs to consider the widespread legitimate uses of nitrous oxide by industry, healthcare and consumers. Currently, there are few, if any, alternatives to the gas for these uses. Awareness of this issue, and consultation with these partners, will, therefore, be required.

In most cases, countries have used a range of measures to restrict the supply of nitrous oxide and provide targeted health promotion. The **case studies** included in the report present a variety of responses adopted at national level.

Notes

(¹) *Recreational use of nitrous oxide: a growing concern for Europe.*

Report: https://www.emcdda.europa.eu/publications/rapid-communication/recreational-use-nitrous-oxide-growing-concern-europe_en

Spotlight: https://www.emcdda.europa.eu/spotlights/spotlight-recreational-use-nitrous-oxide-laughing-gas_en

(²) During the 19th century, 'laughing gas parties' were popular among the members of the British upper class.

(³) The United Kingdom is no longer a member of the EMCDDA, having left the EU on 31 December 2020. A case study is provided on the UK, a non-EU country, because the use of nitrous oxide has been established in young people for a longer period there, and these experiences, including the response, may be helpful in informing responses in other countries.