

Perspective: The Scientist

In this BLOCK II you as a scientist will assess the use of laughing gas (N₂O) on a number of aspects. These aspects are a basis for arguments that form your opinion on this theme.

1. User groups

In recent years, use has spread from the nightlife and has become a "trend". Nowadays laughing gas is used by both boys / men and girls / women and by people with different ethnic backgrounds, from all regions of the Netherlands and with different educational levels. The ever-use of laughing gas is the lowest among students (5%); first-year MBO and HBO students (17%); outgoing people aged 15-35 (54%). A substantial part of the ever users have since stopped.

a) Do you think these are worrying figures? Yes/No

2. Effects of laughing gas in the short term

A few things are already known about the effect and health risks of laughing gas.

First of all, the way in which laughing gas is used is important. Breathing in the gas directly from a gas tank, gas ampul or (whipped cream) syringe can cause freezing symptoms of the lips, mouth and respiratory tract. Freezing symptoms have also been reported to hands and fingers by filling balloons. Recreational use, 5-10 balloons (= ampules) of laughing gas at a time and at most once a month, has no adverse health effects.

More frequent use and a higher dose (= more balloons / ampules at a time) can lead to a lack of oxygen in the brain with associated effects. The table below shows the types of effects with more frequent use.

a) Encircle the most dangerous, most common, and least common effect according to your opinion.

	not in last year	once	couple times, <monthly	frequent users	total
<i>Number of respondents</i>	72	90	293	75	528
<i>NONE of these effects *</i>	40.6	28.4	31.0	18.4	30.0
<i>Headache</i>	29.7	29.0	33.9	40.2	33.4
<i>Dizziness</i>	30.5	33.5	30.9	30.5	31.2
<i>Tingling in hands and / or feet *</i>	27.2	23.5	31.0	42.6	30.9
<i>Confusion</i>	13.4	17.1	17.8	18.0	17.1
<i>Nausea</i>	7.1	14.8	14.7	12.9	13.5
<i>Craving *</i>	2.9	11.0	13.2	20.7	12.5
<i>Habituation *</i>	1.3	7.1	5.6	17.2	6.9
<i>Nasty hallucinations</i>	3.4	4.8	5.5	9.8	5.7
<i>Unconsciousness</i>	5.9	3.5	6.8	2.3	5.5
<i>Cases / accidents</i>	7.9	4.2	3.7	10.5	5.3
<i>Memory loss</i>	2.9	3.5	4.5	7.8	4.6
<i>Feeling weak the following days</i>	0.0	4.5	4.7	3.5	3.9
<i>Anxiety or panic attack</i>	6.3	2.6	2.3	7.4	3.6
<i>Freezing wounds to the mouth or lips</i>	0.0	1.3	2.2	0.0	1.4
<i>Irritability / irritation</i>	0.0	1.0	1.0	1.2	0.9

Craving = irresistible sense of reuse. Habituation = more needed to get the same effect.

* = statistically significant difference between the groups.

3. Effects of laughing gas in the long term

The available knowledge about the long-term effect of laughing gas is about the influence of laughing gas on vitamin B12. Laughing gas causes the active form of vitamin B12 to become inactive, the complaints and problems that arise as a result are comparable to a vitamin B12 deficiency.

With long-term frequent use of laughing gas, a wide range of problems can arise due to the vitamin B12 deficiency. Usually this only occurs after months or years of frequent use, but it can also occur with frequent use in a short time (50-100 balloons in one session of 3 hours) or with prolonged solid use (daily 10-20 balloons for ten days)).

The most important consequence of a vitamin B12 deficiency are the neurological problems that can arise. Vitamin B12 plays an important role in the production of myelin, the protective layer of the nerves. A few dozen cases have been described about users with neurological deficits, such as tingling, numbness in the limbs, muscle weakness, coordination disorders and paraesthesias (impaired perception of sensation). In patients with MRI scans the spinal cord was affected, despite the fact that these symptoms were serious they can be treated well with vitamin B12, provided the deficiency is detected at an early stage, and treatment can make the symptoms (partly) reversible.

- a) Provide an overview of the long-term complaints here

4. Knowledge gaps (where knowledge is lacking)

What is really known about the harmful effects? Are we not too easy-going about laughing gas, or are the risks overestimated? Professionals (care providers, researchers) agree: there must be more knowledge and insight into the short and long-term risks of laughing gas use.

A prevention worker states that you cannot say anything meaningful to young people based on current knowledge. Even a doctor who works at parties would like to know more about the acute health effects and long-term effects, but as long as too little is known about it, he argues in favor of stricter use and perhaps watering down later than now too carefully to be. A campaign employee recognizes the dilemma, but believes that you should be cautious about dissuasive information.


- a) What do you think of the opinion of the last 3 people mentioned?
- b) What is your opinion about this?
- c) How important do you think follow-up research is?

5. Now complete worksheet II and share your findings with your group (in BLOCK III) and try to present your own arguments as well as possible when forming a group opinion.

Perspective: The Seller

In this BLOCK II you as a seller will assess the sale of laughing gas (N_2O) on a few aspects. These aspects are a basis for arguments that form your opinion on this theme.

1. Every producer of substances is required by law to draw up a safety data sheet (SDS) of the produced substance. The SDS is intended to inform the seller about potential hazards if he has a stock of the substance in his shop or for a professional user, such as a doctor who administers the substance to his patient. The SDS is therefore intended for the professional and not the citizen.
 - a) Below a shortened SDS of laughing gas. Consider only the yellow-marked text and encircle that relevant parts for forming an opinion about the use of laughing gas among young people.

	SAFETY DATA SHEET according to REGULATION (EU) No. 453/2010, Bijlage I/II	page : xx of 10
		Revised edition no: 3
		Date : 1 / 6 / 2014
		Replaces : 1 / 11 / 2012
Nitrous oxide (laughing gas)		EIGA093A

Danger

SECTION 1. Identification of the substance / mixture and of the company

1.2. Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified uses. : Industrial and professional. Perform a risk analysis before use. Gas test / gas calibration.
 Laboratory use. Chemical reaction / Synthesis.
 Aerosol propellant.
 Use for the manufacture of electronic / photovoltaic components.
 For a comprehensive overview of the applications, contact the supplier.
- Uses advised against. : Do not breathe product intentionally. Choking hazard.

SECTION 2. Hazards identification

2.2. Label elements

Labelling Regulation EC 1272/2008 (CLP)

- Hazard icons :
- Hazard pictograms code : GHS03 - GHS04
- Signal word : Danger
- Hazard statements : H270 - May cause or intensify fire; oxidizing.
 H280 - Contains gas under pressure; may explode if heated.
- Precautionary measures
 - Prevention : P244 - Keep valves and fittings free from oil and grease.
 P220 - Keep away from combustible material.
 - Reaction : P370+P376 - In case of fire: Stop leak if safe to do so.
 - Storage : P403 - Store in a well-ventilated place.

2.3. Other hazards

- : Stifling in high concentrations.
 Contact with liquid can cause freezing wounds.

SECTION 4. First aid measures

4.2. Most important symptoms and effects, both acute and delayed

- : May cause asphyxiation in high concentrations. By losing consciousness, the victim is not aware of the suffocation. Can produce narcotic effects in low concentrations. Symptoms may include dizziness, headache, nausea and balance disorders.

SECTION 12. Ecological information


12.1. Toxicity

- EC50 48h - Daphnia magna [mg/l] : Scientifically unfounded study.
 EC50 72h - Algae [mg/l] : Scientifically unfounded study.
 LC50 96 Uur - vis [mg/l] : Scientifically unfounded study.

2. A SDS is not necessarily attached at the (online) sale of products (substances) to citizens. When buying laughing gas at Blokker, the buyer sees, among others, the following (online) information.

Description

A set of 50 whipped cream ampules of the brand Kayser in recyclable steel with calibrated gas content (N₂O). One ampul contains 0,5L liquid. This is a standard model and thus suitable for siphons from iSi and other brands.



Specifications

Article number	4304574
Brand	Kayser
Dimensions of packaging in cm (l x w x h)	9,5 x 20 x 7,5
Manufacturer warranty	2
EAN	9002539011510
Material	Steel
Weight exclusive packaging (gr)	1425
Color	Silver colored

Information about laughing gas ampules on the blokker site

NL

10 whipped cream capsules for frothing whipped cream, desserts, espumas, sauces and soups. Non-refillable. Maximum foamable amount: 0.5 l per capsule. Only use the whipped cream device and capsules in accordance with the operating instructions. Unsuitable and not permitted for purposes other than those explicitly stated. Don't inhale! Improper use can endanger your health. Always use iSi devices and iSi capsules together. Brand color silver. Recyclable steel. Volumes: 10.3 mL. Net content of 7,5 g of pure nitrous oxide (E 942). Gross weight around 29 per capsule. Do not throw away full capsules. Do not open by force. Keep out of reach of children. Reservoir is under pressure. Dispose of packaging only after removing the last capsule. Store at room temperature and dry. Protect from the sun and heat up above 50 ° C. Best before at the bottom.

Information about nitrous oxide cartridges on the package

The information on the blokker site and the packaging shows the sale of laughing gas (N₂O) for a different purpose, namely as propellant gas filling for a whipped cream sprayer. Yet they are the same ampules that young people can use for their laughing gas experience.

- Do you find the product information for laughing gas ampules in the store sufficient? Yes/No
- Do you find that Blokker takes sufficient measures to prevent the ampules being misused? Yes/No
- If not, what could they improve?

Upon further inquiries with the Blokker staff, it appears that Blokker's sales policy is:

- max. 20 cartridges per customer, only available at the cash register
- the staff is free to prohibit the sale to young people..

- Do you think that the above measures by Blokker are sufficient to regulate sales among young people? Yes No

3. Bol.com is an online store that also offered laughing gas (N₂O) as propellant for the whipped cream sprayer. Read the review below.

AD **Nieuws** **Regio** **Sport** **Show** **Video** **Koken & Et**


Bol.com stops selling laughing gas

Bol.com has stopped selling laughing gas cartridges. NH reports that. The consequences of inhaling the metal capsules prove more dangerous in the longer term than expected. „The patterns are controversial. That is why we decided to no longer sell the articles," says spokesperson Marjolein Verkerk.

Naz Taha 11-02-18, 11:31 Latest update: 15:17

"We sell everything, even from other providers, as long as the article is not prohibited by law," said Verkerk. "But sometimes we make an exception. If, for example, the government questions an article or if we expect in the short term changes in legislation.

"According to Verkerk, Bol.com has removed the ampules from the range because they are used incorrectly. Namely in combination with balloons and so-called laughing gas crackers. "They are actually whipped cream ampules, but they are often not used for that. The ampules are controversial. That is why we have decided to no longer sell them."



The patterns are controversial. That is why we have decided to stop selling.

- Spokesman Bol.com

- a) What do you think of Bol.com's approach to Blokker's approach??

4. Complete worksheet II now and then share (in BLOCK III) your findings with your group and try to present your own arguments as well as possible when forming a group opinion.

Perspective: The Young People

In this Block II you read parts of reports about interviews and field research among your peers about the use of laughing gas (N₂O). These texts are a basis for arguments that form your opinion on this theme.

1. Reasons for use

- Social media and friends. Young people see and share videos of peers in which laughing gas is used. The images of smiling youngsters tumbling over each other give the waist a cheerful "*dimension*".
- Low threshold. The cheerful image of laughing gas (cheerful, innocent), in combination with its easy availability, makes the substance accessible to young people. For younger, inexperienced users (novites), laughing gas is a bit more taboo, but they don't really see it as a drug. The more experienced experimental or party users see laughing gas more as a real drug, albeit a soft drug.
- Positive experienced effects. The excitement of doing together; the pleasure of using a group; the intoxication; the relaxation; and the other experience of sound.

The quantitative study among outgoing parties shows that hearing about positive user experiences, experiencing positive effects and having friends who use them are important reasons for laughing gas use. The fact that laughing gas is legal does not make much difference to the majority of their choice for laughing gas.

- a) Social media and friends are mentioned as the reason. How can young people cope with this?
- b) 8% of young people have ever used laughing gas. Most have stopped after this. Do you think something should be done about the low threshold? Yes/No
- c) If yes. What would you suggest?

2. Read the text below and circle the points that you think are ok, normal or wrong as follows:

ok:

normal:

wrong:



Use setting

(Qualitative) field research shows that young people who have sometimes used laughing gas often did this for the first time with friends on a special occasion, an official holiday such as King's Day or a home party. In general, young people use laughing gas exclusively as a group. They exceptionally do it on their own, for example in their bedroom. The younger the users, the more they try to hide their use. Girls use laughing gas more often at home during 'seats', boys do it more often outdoors on the street. There are young people who plan their laughing gas use, for example "balloon groups" who come together to use laughing gas or groups that arrange "car parties" to use laughing gas together. Others more often take "spontaneous" laughing gas while going out, at home parties or when a delivery service is called in on the spot for an "after party". According to the (quantitative) survey among outgoing people, they mainly use laughing gas at home (or at home with friends), at parties and during (outside) festivals.

3. Frequency of use and dose

The field study shows that the majority of users do not use laughing gas very often and not much. The majority of young people see laughing gas as something that you occasionally do with friends.

In addition, it is not uncommon for young people to use laughing gas more often in the beginning, to then do it less often or stop it altogether. The majority of young people in the field study use one or a few times a year to one, at most a few times a month. On these occasions, usually one to a few balloons are taken per person.

But there are also young people with a more extreme usage pattern in which a lot of laughing gas is used in an evening on a group basis.

A small proportion (1 in 20) of those with laughing gas experience once had a period in which they took at least 10 balloons on a usage day every month or more often.

- a) Do you think the fact that only a small group of young people show an extreme usage pattern is a reason to raise the general use of laughing gas to a social problem? Yes/No
- b) What is the argument for your answer?

4. View the tips below for the use of laughing gas.

- If you take laughing gas then sit down and put sharp and / or heavy items out of your hand.
- You should always take laughing gas from a balloon and never directly from a bottle, because this will prevent oxygen shortage, suffocation and freezing of your lips and / or your vocal cords.
- It is preferable not to combine laughing gas with alcohol, because that reinforces the narcotic effect and increases the risks.
- Be alert to signals from your body and stop if you get complaints.
- Only take laughing gas if you feel physically and mentally comfortable.

As soon as you have too much laughing gas and too little oxygen in you, that leads to brain damage.

- Do not completely empty your balloon in one go, but take breaks.
- First inhale some air and then inhale laughing gas from the balloon.
- First, blow some air into the balloon and then breathe in air a few times before inhaling the laughing gas.

a) Think of a specific or general tip for the use of laughing gas.

5. Now complete worksheet II and share your findings with your group (**in BLOCK III**) and try to present your own arguments as well as possible when forming a group opinion.



Enter the number you received from the teacher

WORKSHEET 0 **Entry**

1. Are you familiar with the theme "use of laughing gas among young people"? Yes / little / no

2. What do you know about it?

3. Encircle: I have heard about this on TV / youtube / live / other

4. What was your response then?

5. How would you respond now?

6. I know ... people who have tried laughing gas once

7. Encircle: I would find it exciting / cool / normal / scary / wrong to give laughing gas a try

8. Do you find it important that this topic is dealt with at school?



Enter the number you received from the teacher

WORKSHEET 1 **After videos**

1. What different perspectives on the use of laughing gas have come along?

▪

▪

▪

▪

2. What is your opinion about the use of laughing gas among young people?

3. What is your opinion about the free sale of laughing gas among young people?



Enter the number you received from the teacher

WORKSHEET 2 **With Expert method**

1. From what perspective did you read information? Young people / Salesman / Researcher (Encircle)
2. What is your most important observation from the piece read?

3. What is your opinion about the use of laughing gas among young people?

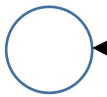
a) My opinion:

b) Did you change your opinion after reading the information? Yes/No

4. What is your opinion about the free sale of laughing gas among young people?

a) My opinion:

b) Did you change your opinion after reading the information? Yes/No



Enter the number you received from the teacher

WORKSHEET 3 **After Group Consensus**

1. What is your group opinion about the use of laughing gas among young people?

2. What is your group opinion about the sale of laughing gas among young people?

3. Have you been able to sufficiently defend your position in the group debate? Yes/No

4. Did you have sufficient arguments for this? Yes/No

5. What is your opinion about the use of laughing gas among young people?

a) My opinion:

b) Did you change your opinion after the group debate? Yes/No

6. What is your opinion about the free sale of laughing gas among young people?

a) My opinion:

b) Did you change your opinion after the group debate? Yes/No