



TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Issue date: 07/17/2020

Revision date: 06/03/2021

Version: 2.0

SECTION 1: Identification

1.1. Identification

Product form : Substance
Trade name : TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Electrical and thermal conductive additive, friction modifier, carbon carrier, lubricant, refractories.
Restrictions on use : No information available.

1.3. Supplier

Imerys Graphite & Carbon Switzerland Ltd.
Strada Industriale 12 6743 Bodio (Switzerland)
6743
T +41-918732010 - F +41-918732019
graphiteandcarbon.ch@imerys.com

1.4. Emergency telephone number

Emergency number : For Hazardous Materials [or Dangerous Goods] Incident
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) : None
Signal word (GHS US) : None
Hazard statements (GHS US) : Not applicable
Precautionary statements (GHS US) : No information available.

2.3. Other hazards which do not result in classification

No additional information available.

2.4. Unknown acute toxicity (GHS US)

No information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name : TIMREX® HSAG, TIMREX® CyPbrid

Name	Product identifier	%
Graphite	(CAS-No.) 7782-42-5	> 95

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 4: First-aid measures

4.1. Description of first aid measures

- | | |
|---------------------------------------|---|
| First-aid measures after inhalation | : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). |
| First-aid measures after inhalation | : Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor |
| First-aid measures after skin contact | : Wash skin with mild soap and water. If irritation persists, consult a doctor. |
| First-aid measures after eye contact | : Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| First-aid measures after ingestion | : Rinse mouth. Do not induce vomiting. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice. |

4.2. Most important symptoms and effects (acute and delayed)

- | | |
|------------------|--|
| Symptoms/effects | : Headaches, nausea, dizziness. Irritating to eyes, respiratory system and skin. |
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4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

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| Suitable extinguishing media | : Sand, foam, carbon dioxide, extinguishing powder, water spray. |
| Unsuitable extinguishing media | : High volume water jet. |

5.2. Specific hazards arising from the chemical

- | | |
|--|---|
| Reactivity in case of fire | : No information available. |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released, such as carbon monoxide, carbon dioxide. |

5.3. Special protective equipment and precautions for fire-fighters

- | | |
|--------------------------------|--|
| Protection during firefighting | : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |
|--------------------------------|--|

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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|---|--|
| General measures | : Evacuate personnel to a safe area. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure adequate ventilation, especially in confined areas. |
| Personal Precautions, Protective Equipment and Emergency Procedures | : Use personal protective equipment as required. |

6.1.1. For non-emergency personnel

- | | |
|----------------------|---|
| Protective equipment | : Wear recommended personal protective equipment. |
| Emergency procedures | : Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Do not eat, drink or smoke during use. Wash thoroughly after handling. |

6.1.2. For emergency responders

- | | |
|----------------------|---|
| Protective equipment | : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". |
|----------------------|---|

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Advise local authorities if considered necessary.

6.3. Methods and material for containment and cleaning up

- | | |
|-------------------------|--|
| Methods for cleaning up | : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal. |
| Other information | : Dispose of materials or solid residues at an authorized site. |

6.4. Reference to other sections

For further information refer to section 13.

TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges. Use personal protective equipment as required.
- Hygiene measures : Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust.
- Local and general ventilation : Ensure adequate ventilation, especially in confined areas.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container tightly closed. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep only in original container.
- Storage temperature : No information available.
- Material used in packaging/containers : No information available.
- Incompatible materials : Fluorine, chlorine trifluoride.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Graphite (7782-42-5)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH TWA (mg/m ³)	2 mg/m ³ (all forms except graphite fibers-respirable particulate matter)
USA - OSHA - Occupational Exposure Limits	
OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (synthetic-total dust) 5 mg/m ³ (synthetic-respirable fraction)
USA - IDLH - Occupational Exposure Limits	
US IDLH (mg/m ³)	1250 mg/m ³
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL (TWA) (mg/m ³)	2.5 mg/m ³ (natural-respirable dust)

8.2. Appropriate engineering controls

- Appropriate engineering controls : Remove all sources of ignition. Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves (EN 374).

Eye protection:

Safety glasses with side shields (EN 166).

Skin and body protection:

Wear suitable protective clothing.

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment FFP2SL (EN 149).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Solid
- Appearance : Powder.
- Color : Gray to black
- Odor : Odorless
- Odor threshold : No data available
- pH : No data available

TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Melting point	: > 3000 °C (OECD 102)
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: Ca. 2.2 g/m ³ (DIN 51901)
Solubility	: < 0.001 g/L
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: > 500 °C
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid formation of dust. Static discharges.

10.5. Incompatible materials

Fluorine, chlorine trifluoride.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Graphite (7782-42-5)	
LD50 oral rat	> 2000 mg/kg (OECD 423, CSR)
LC50 inhalation rat (mg/l)	> 2000 mg/L/4h (OECD 403, CSR)

Skin corrosion/irritation	: Not classified
	Non-irritant (Rabbit, OECD 404, CSR)
Serious eye damage/irritation	: Not classified
	Non-irritant (Rabbit, OECD 405, CSR)

TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Respiratory or skin sensitization	: Not classified Respiratory tract: Non-sensitizing. Based on available data, the classification criteria are not met. (Mouse, OECD 429, CSR) Skin: Non-sensitizing. Based on available data, the classification criteria are not met. (Mouse, OECD 429, CSR)
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met. (Bacterial Reverse Mutation Test, OECD 471, CSR) Based on available data, the classification criteria are not met. (Mammalian cell gene mutation assay, OECD 476, CSR) Based on available data, the classification criteria are not met. (Mammalian chromosome aberration test, OECD 473, CSR)
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met. (Waiving, CSR)
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met. (OECD 422, CSR)
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified Oral: NOAEL = 813 mg/kg Based on available data, the classification criteria are not met. (Rat, OECD 422, CSR) Inhalational: NOAEC = 12 mg/m ³ Based on available data, the classification criteria are not met. (Rat, OECD 412, CSR)
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Graphite (7782-42-5)	
LC50 fish 1	> 100 mg/L/96 h (Danio rerio, OECD 203, CSR)
EC50 Daphnia 1	> 100 mg/L/48 h (Daphnia magna, OECD 202, CSR)
EC50 algae 1	> 100 mg/L/72 h (Pseudokirchneriella subcapitata, OECD 201, CSR)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions.

TIMREX® HSAG, TIMREX® CyPbrid 1, TIMREX® CyPbrid 2, TIMREX® CyPbrid 3

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

Graphite (7782-42-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Graphite (7782-42-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Graphite (7782-42-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Graphite (7782-42-5)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

No additional information available


SECTION 16: Other information

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 06/03/2020
Data sources : ECHA. Loli.
Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

	ANNEX TO SAFETY DATA SHEET	Page : 7 / 12
		Revision nr : 1.0
	TIMREX® HSAG and TIMREX® CyPbrid	Issue date : 17/07/2020
		Supersedes :

ADDITIONAL INFORMATION TO THE STABILITY AND REACTIVITY PROPERTIES

1. Emission of gaseous substances in an open/permeable container.

This product can generate emissions of carbon monoxide (CO) and/or carbon dioxide (CO₂). The emission rate as - gram/ton_{graphite}/day - given below (Tab 1) are from measurements of gas generated within a sealed container filled with graphite, with an initial atmospheric pressure of air in both constant volume or constant pressure condition over a period of 28 days.

Table 1. Maximal CO and CO₂ release during the storage test of CyPbrid and HSAG at 22 ±2°C.

	Non-ventilated, constant volume (no additional supply of oxygen)	Non ventilated, constant pressure (no additional supply of oxygen)	Ventilated, atmospheric pressure (constant supply oxygen)
CyPbrid and HSAG			
• CO	Max 0.60 g/ton/d	Max 0.56 g/ton/d	No data available
• CO ₂	Max 5 g/ton/d	Max 30 g/ton/d	No data available

The CO and CO₂ release from CyPbrid and HSAG are measured during a long-lasting (over 28 days) real-life experiment. The CO and CO₂ data are shown in Table 2.

Table 2. Maximal CO and CO₂ concentration released during the storage test measured in a real-life experiment.

	Non-ventilated, constant volume (no additional supply of oxygen)	Non ventilated, constant pressure (no additional supply of oxygen)	Ventilated, atmospheric pressure (constant supply oxygen)
CyPbrid and HSAG			
• CO	2300 ppmv	1000 ppmv	< 1 ppmv
• CO ₂	17000 ppmv	10500 ppmv	No data available

To conclude, the limit value (PEL - OSHA) is 50 ppmv, which means a person shall not be exposed to the atmosphere in the non-ventilated containment. To keep the concentration below the limit value (PEL), a typical minimal industrial ventilation rate exchange of 5 - 10 air exchanges per hour of the containment is recommended.


	ANNEX TO SAFETY DATA SHEET	Page : 8 / 12
		Revision nr : 1.0
	TIMREX® HSAG and TIMREX® CyPbrid	Issue date : 17/07/2020
		Supersedes :

Table 3. Exposure limits for CO and CO2 according to OSHA, NIOSH and ACGIH

Agency	CO (ppm)	CO ₂ (ppm)
OSHA (PEL)	50	5000
NIOSH (PEL)	35	5000
ACGIH (TLV – TWA)	25	5000

More accurate estimation of gas concentrations in containment are available from the manufacturer Imerys, upon request.

2. Precautions

2.1. Storage precautions

HSAG and CyPbrid can emit gaseous invisible substances and ambient oxygen is typically depleted.


Emitted gases are immediately diluted by the air in the containment and are eliminated with ventilation air. The gases emitted at normal indoor temperature include carbon-monoxide (CO), carbon-dioxide (CO₂) and negligible amounts of other gases like methane and nitrogen oxide, typically below the normal air content.

If HSAG or CyPbrid are stored in bulk, or in bags in an unventilated space with less than 5 - 10 air exchange per hour, the concentration of emitted gases, or the oxygen depletion, may pose a health threat for humans present in the containment and precautions should be taken.

For large enclosed storages, entry should be prohibited by means of secured lock and a well-established written approval process for entry. Entry shall be allowed only AFTER ventilation has been concluded and measurement with gas meter has confirmed safe atmosphere in the space. Alternatively, use self-contained breathing apparatus when entering space. In this case, always make sure backup personnel are in the immediate vicinity monitoring the entry. Label points of entry to enclosed storage areas containing HSAG or CyPbrid with “Carbon Monoxide Risk Area, Ventilate Thoroughly Before Entry”.

2.1.1. Non-ventilated warehouse

In all cases, a non-ventilated storage room is not recommended. Even in the case of non-permeable packaging, the risk of rupture by incidents is present. If a ventilated storage is not possible, both room

	ANNEX TO SAFETY DATA SHEET	Page : 9 / 12
		Revision nr : 1.0
	TIMREX® HSAG and TIMREX® CyPbrid	Issue date : 17/07/2020
		Supersedes :

monitoring and personal monitoring for oxygen and carbon monoxide are mandatory. In case of alarm, people can enter only using adequate PPE (Personal Protective Equipment) for carbon monoxide. In case of depleted oxygen levels, a self-contained breathing apparatus must be worn before entering the storage. Alternatively, the door can be maintained open until the oxygen level will be back to the normal level.

To conclude, the use of a non-ventilated room is discouraged.

2.1.2. Ventilated warehouse

In the case of continuous ventilation at a rate of 5-10 air exchange per hour of the empty volume, no risk should be detected. However, personal monitoring is still recommended, in the case of ventilation failure. This is valid for any kind of packaging, including bulk open containers.

2.2. Transportation precautions

2.2.1. Surface transport

Small amounts in pallet by truck


There is a short turnover term and small amount of CyPbrid product from the factory to the client. Due to the factors of short delivery time and small amount, the risk of release of significant concentrations of carbon monoxide is minimal, excluding the cases of using paper bags or the rupturing of bags. In the latter instance, the concentrations of carbon monoxide/carbon dioxide might be significant and personal monitoring for CO and effective PPE are required when opening the truck, e.g., for inspection purposes. Opening of the truck doors is allowed only after reading this SDS, including the Annex.

Opening of the truck doors requires a person to be equipped with a personal CO monitoring device and suitable PPE available in case of alarm. In any case, opening of the doors at the entrance for at least 10 minutes should be sufficient to exchange the internal air and to allow a safe emptying of the truck.

The use of paper bags are not recommended for the transport of small amounts of CyPbrid by truck.

Container by truck

Container transport by truck is usually over a longer period of time, with a considerable amount of CyPbrid product.

	ANNEX TO SAFETY DATA SHEET	Page : 10 / 12
	TIMREX® HSAG and TIMREX® CyPbrid	Revision nr : 1.0
		Issue date : 17/07/2020
		Supersedes :

Due to the high amount of product transported in a sealed container, the risks of release of significant amounts of carbon monoxide and/or carbon dioxide are minimal, except when using paper bags or in the case of ruptured packaging. In the latter instance, the concentrations of carbon monoxide/carbon dioxide might be significant and personal monitoring for CO and effective PPE are required when opening the container, e.g., for inspection purposes.

Opening of the container doors is allowed only after reading this SDS, including the Annex.

Opening of the container doors requires a person to be equipped with a personal CO monitoring device and have suitable PPE available in case of alarm. In any case, opening of the doors at the entrance for at least 10 minutes should be sufficient to exchange the internal air and to allow a safe emptying of the container.

Container by ship

The transport time can be very long (weeks to months), with potential high fluctuations in temperature.

Due to the high amount of product transported in a sealed container, the risks of release of significant amounts of carbon monoxide and/or carbon dioxide are minimal, except when using paper bags or in the case of ruptured packaging. In the latter, the concentrations of carbon monoxide/carbon dioxide might be significant and personal monitoring for CO and effective PPE are required when opening the container, e.g., for inspection purposes.

Opening of the container doors is allowed only after reading this SDS, including the Annex.

Opening of the container doors requires a person to be equipped with a personal CO monitoring device and have suitable PPE available in case of alarm. In any case, opening of the doors at the entrance for at least 10 minutes should be sufficient to exchange the internal air and to allow a safe emptying of the container.


2.2.2. Air transport (small amounts)

The risks of rupturing the packaging and gas generation are high during air transportation and are mitigated only by the short time of the transport (less than 24 hours). For this reason, we strongly recommend using only the composite bag (PE-Al-PE) and the HDPE drum to reduce the risk to a minimal level

2.3. Handling Precautions

2.3.1. Opening of the container at arrival

Opening of the container doors is allowed only after reading this SDS, including the Annex.

	ANNEX TO SAFETY DATA SHEET	Page : 11 / 12
		Revision nr : 1.0
	TIMREX® HSAG and TIMREX® CyPbrid	Issue date : 17/07/2020
		Supersedes :

Opening the container doors requires a person to be equipped with a personal CO monitoring and have suitable PPE available in case of alarm. In any case, opening of the doors at the entrance for at least 10 minutes should be sufficient to exchange the internal air and to allow a safe emptying of the container.

2.3.2. Internal logistic

Internal logistic is linked with the room ventilation. If there is no ventilation present in the storage or even in temporary storage rooms, see section 2.1.1. for precaution guidelines. In all the cases of loading the warehouse, picking up the product from the warehouse, reorganizing the available space in the warehouse, or in any other case like cleaning, inspection, pest control, etc., personal monitoring is mandatory, and the appropriate PPE should be available.

2.4. Use


The risk is minimal, given the short time required to open the bags and transfer the products.

2.5. CO-intoxication and prevention

Carbon monoxide: carbon monoxide is highly toxic gas. It binds with the hemoglobin in the blood to form carboxyhemoglobin, which cannot take part in normal oxygen transport and greatly reduces the blood's capability to transport oxygen to vital organs such as the brain. In high concentrations, carbon monoxide may cause asphyxiation. Symptoms may include loss of mobility/consciousness. The victim may not be aware of asphyxiation.

Carbon dioxide is primarily hazardous by means of replacing the air and thereby depriving the space of oxygen.

If HSAG or CyPbrid is not handled or stored in accordance with the recommendations in Section 7 of the SDS, the risk of harmful exposure increases, particularly exposure to concentration of CO higher than the PEL (Section 8.1). Oxygen detectors should be used. In case of exposure, it is important to quickly remove the victim from the contaminated area. Unconscious persons should immediately be given oxygen and artificial respiration. The administration of oxygen at an elevated pressure has shown to be beneficial, as has treatment in a hyperbaric chamber. If the victim is unconscious, place in recovery position and seek medical advice.

	ANNEX TO SAFETY DATA SHEET	Page : 12 / 12
		Revision nr : 1.0
	TIMREX® HSAG and TIMREX® CyPbrid	Issue date : 17/07/2020
		Supersedes :

3. Emission of gaseous substances from sealed, impermeable containers

If the product is received in sealed, impermeable packaging (plastic, or multilayer plastic-aluminum), no risk of CO or CO₂ emission is expected, excluding the risk of ruptured or defect containers (see 1.1). Ventilation is no longer a requirement if concentration levels are monitored using a standard room gas analyzer.