

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830



GOLD
STANDARD
PHANTOMS


1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier**
Product Name QASPER Perfusate
Product Code GSP 0249
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
Identified Use(s) Circulating liquid for use inside the QASPER Phantom.
Uses Advised Against None known
- 1.3 Details of the supplier of the safety data sheet**
Company Identification Gold Standard Phantoms Limited
Unit 103 Belgravia Workshops
159-163 Marlborough Road
London
N19 4NF
United Kingdom

Telephone +44 (0) 207 684 7749
E-Mail (competent person) info@goldstandardphantoms.com
- 1.4 Emergency telephone number**
Emergency Phone No. +44 (0) 207 684 7749
Languages spoken English

2. SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture Regulation (EC) No. 1272/2008 (CLP)**
Skin Sens. 1; H317
Aquatic Chronic 3; H412
- 2.2 Label elements**
Product Name QASPER Perfusate
Contains: Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1) and Nickel(II) chloride hexahydrate

Hazard Pictogram(s)


Signal Word(s) WARNING

Hazard Statement(s) H317: May cause an allergic skin reaction.
H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s) P261: Avoid breathing vapours.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of water.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P362+P364: Take off contaminated clothing and wash it before reuse.

Supplemental information Not applicable
- 2.3 Other hazards**
None known

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830



GOLD
STANDARD
PHANTOMS

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

EC Classification Regulation (EC) No. 1272/2008 (CLP)

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H - isothiazol-3-one (3:1)	<0.1	55965-84-9	-	Not yet assigned in the supply chain	Acute Tox. 3; H301 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317 Acute Tox. 3; H331 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 (MFAC = 100) Specific Concentration Limit Eye Irrit. 2; H319: 0,06 % ≤ C < 0,6 % Skin Corr. 1B; H314: C ≥ 0,6 % Skin Irrit. 2; H315: 0,06 % ≤ C < 0,6 % Skin Sens. 1; H317: C ≥ 0,0015 %
Nickel(II) chloride hexahydrate	<0.1	7791-20-0	-	Not yet assigned in the supply chain	Acute Tox. 3; H301 Skin Irrit. 2; H315 Skin Sens. 1; H317 Acute Tox. 3; H331 Resp. Sens. 1; H334 Muta. 2; H341 STOT RE 1; H372 Carc. 1A; H350i Repr. 1B; H360D Aquatic Acute 1; H400 Aquatic Chronic 1; H410 Specific Concentration Limit Skin Sens. 1; H317: C ≥ 0,01 % STOT RE 2; H373: 0,1 % < C < 1 % STOT RE 1; H372: C ≥ 1 % Skin Irrit. 2; H315: C ≥ 20 %

Note: For full text of H phrases see section 16.

4. SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Inhalation

Skin Contact

Eye Contact

Ingestion

Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Avoid breathing vapours. Avoid contact with skin and eyes. Contaminated clothing should be laundered before reuse.

IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.

IF ON SKIN: Wash with plenty of water. If irritation (redness, rash, blistering) develops, get medical attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.

Rinse mouth. Get medical advice/attention if you feel unwell.

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018



GOLD
STANDARD
PHANTOMS

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

- 4.2 **Most important symptoms and effects, both acute and delayed** May cause an allergic skin reaction.
- 4.3 **Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

5. SECTION 5: FIREFIGHTING MEASURES

- 5.1 **Extinguishing media**
Suitable Extinguishing media As appropriate for surrounding fire.
Unsuitable extinguishing media Direct water jet may spread the fire.
- 5.2 **Special hazards arising from the substance or mixture** Product is not classified as flammable, but will burn on contact with flame or exposure to high temperature. Combustion may cause toxic fumes. (Carbon monoxide, Carbon dioxide).
- 5.3 **Advice for fire-fighters** Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 **Personal precautions, protective equipment and emergency procedures** Caution - spillages may be slippery. Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. Eliminate sources of ignition. Shut off leaks if without risk. Avoid contact with skin and eyes. Ensure adequate ventilation. Avoid breathing vapours.
- 6.2 **Environmental precautions** Avoid release to the environment.
- 6.3 **Methods and material for containment and cleaning up** Provided it is safe to do so, isolate the source of the leak. Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Dispose of this material and its container as hazardous waste. Allow small spillages to evaporate provided there is adequate ventilation.
- 6.4 **Reference to other sections** See Section: 8,13

7. SECTION 7: HANDLING AND STORAGE

- 7.1 **Precautions for safe handling** Ensure operatives are trained to minimise exposures. Ensure adequate ventilation. Avoid inhalation of high concentrations of vapours. In case of inadequate ventilation wear respiratory protection. Avoid contact with skin and eyes. Do not ingest. Wear protective gloves/eye protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.
- 7.2 **Conditions for safe storage, including any incompatibilities** Keep container tightly closed. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources.
Storage temperature Keep cool. Protect from sunlight.
Incompatible materials Keep away from: Strong reducing and oxidising agents. Amines. mercaptans.
- 7.3 **Specific end use(s)** Circulating liquid for use inside the QASPER Phantom.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 **Control parameters**
- 8.1.1 **Occupational Exposure Limits** Users are advised to consider national Occupational Exposure Limits or other equivalent values.

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Nickel and its inorganic compounds (except nickel tetracarbonyl):	-	-	0.1	-	-	WEL
water-soluble nickel compounds (as Ni)	-	-	0.5	-	-	Sk, Carc (nickel oxides and sulphides)
nickel and water-insoluble nickel compounds (as Ni)	-	-	-	-	-	Sen (nickel sulphate)




SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018



ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Source: WEL: Workplace Exposure Limit (UK HSE EH40). Sk - Can be absorbed through skin. Sen: Capable of causing respiratory sensitisation. Carc - Capable of causing cancer and/or heritable genetic damage

8.1.2	Biological limit value	Not established.
8.1.3	PNECs and DNELs	Not established.
8.2	Exposure controls	
8.2.1	Appropriate engineering controls	Ensure adequate ventilation. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources.
8.2.2	Individual protection measures, such as personal protective equipment (PPE)	Keep good industrial hygiene. Wear appropriate personal protective equipment, avoid direct contact. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke at the work place. Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
	Eye/ face protection 	Use eye protection according to EN 166, designed to protect against liquid splashes.
	Skin protection 	Wear suitable chemical resistant protective gloves for frequent or prolonged operations tested to EN374 with an acceptable permeation test. Contaminated gloves should be carefully rinsed with water before reuse.
	Respiratory protection 	Respiratory protection is not necessary if room is well ventilated. In case of inadequate ventilation wear respiratory protection.
	Thermal hazards	Not applicable
8.2.3	Environmental Exposure Controls	Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	Information on basic physical and chemical properties	
	Appearance	Clear Liquid
	Odour	Characteristic odour
	Odour threshold	Not established
	pH	Not established
	Melting point/freezing point	Not established
	Initial boiling point and boiling range	Not established
	Flash point	Not established
	Evaporation rate	Not established
	Flammability (solid, gas)	Not relevant - liquid mixture
	Upper/lower flammability or explosive limits	Not established
	Vapour pressure	Not established
	Vapour density	Not established
	Relative density	Not established
	Solubility(ies)	Soluble in water.
	Partition coefficient: n-octanol/water	Not established

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830



GOLD
STANDARD
PHANTOMS

Auto-ignition temperature	Not established
Decomposition Temperature	Not established
Viscosity	1.65mPa.s @ 20°C
Explosive properties	Not explosive
Oxidising properties	Not oxidising

9.2 Other information None known

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	None anticipated. Product is not classified as flammable, but will burn on contact with flame or exposure to high temperature. Hazardous polymerisation will not occur.
10.4 Conditions to avoid	Heat and direct sunlight.
10.5 Incompatible materials	Keep away from: Strong reducing and oxidising agents. Amines. mercaptans.
10.6 Hazardous decomposition product(s)	Nitrogen oxides, Sulphur oxides, Hydrogen chloride Combustion may cause toxic fumes. (Carbon monoxide, Carbon dioxide).

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	
Acute toxicity - Ingestion	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw/day Acute Tox. 3; H301 Harmonised Classification No data
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)	Acute Tox. 3; H301 Harmonised Classification
Nickel(II) chloride hexahydrate	ECHA Registration Endpoint summary: NOAEL 100 mg/kg bw/day Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LC50 >20 mg/l air Acute Tox. 3; H331 Harmonised Classification No data
Acute toxicity - Inhalation	Acute Tox. 3; H331 Harmonised Classification No data
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)	Acute Tox. 3; H331 Harmonised Classification
Nickel(II) chloride hexahydrate	No data
Acute toxicity - Skin Contact	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw/day Acute Tox. 3; H311 Harmonised Classification No data
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)	Based upon the available data, the classification criteria are not met. Skin Corr. 1B; H314 Harmonised Classification No data
Skin corrosion/irritation	SCL: Skin Corr. 1B; H314: C ≥ 0,6 % Skin Irrit. 2; H315: 0,06 % ≤ C < 0,6 % Skin Irrit. 2; H315 Harmonised Classification Read across (nickel chloride): Irritating to skin. ECHA Registration Endpoint summary
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)	Based upon the available data, the classification criteria are not met. Skin Corr. 1B; H314 Harmonised Classification No data
Serious eye damage/irritation	SCL: Eye Irrit. 2; H319: 0,06 % ≤ C < 0,6 % Skin Sens. 1; May cause an allergic skin reaction.
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)	Skin Sens. 1; H317 Harmonised Classification No data
Respiratory or skin sensitization	SCL: Skin Sens. 1; H317: C ≥ 0,0015 % Skin Sens. 1; H317 Harmonised Classification Sensitisation (guinea pig) - Positive (Goodwin, F.J., et al, 1981) SCL: Skin Sens. 1; H317: C ≥ 0,01 % Resp. Sens. 1; H334 Harmonised Classification No data
Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)	Based upon the available data, the classification criteria are not met.
Nickel(II) chloride hexahydrate	
Germ cell mutagenicity	

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018



GOLD
STANDARD
PHANTOMS

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Nickel(II) chloride hexahydrate

Muta. 2; H341 Harmonised Classification

In vitro: Positive (Morita, H., et al, 1991)

In vivo: Negative (rat) (OECD 474)

Carcinogenicity

Nickel(II) chloride hexahydrate

Based upon the available data, the classification criteria are not met.

Carc. 1A; H350 Harmonised Classification

No data

Reproductive toxicity

Nickel(II) chloride hexahydrate

Based upon the available data, the classification criteria are not met.

Repr. 1B; H360D Harmonised Classification

No data

STOT - single exposure

STOT - repeated exposure

Nickel(II) chloride hexahydrate

Based upon the available data, the classification criteria are not met.

Based upon the available data, the classification criteria are not met.

STOT RE 1; H372 Harmonised Classification

No data

Aspiration hazard

Based upon the available data, the classification criteria are not met.

11.2 Other information

None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Based upon the available data, the classification criteria are not met.

Estimated LC50 (Mixture): >100 mg/l.

Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)

Aquatic Acute 1; H400

No data

Aquatic Chronic 1; H410

No data

Nickel(II) chloride hexahydrate

Aquatic Acute 1; H400

No data

Aquatic Chronic 1; H410

No data

12.2 Persistence and degradability

Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)

No data for the mixture as a whole.

CMIT is classified as being readily biodegradable, failing the 10 -day window and MIT is classified as being not readily biodegradable according to the criteria of the test, although significant biodegradation occurred.

Nickel(II) chloride hexahydrate

Not applicable for inorganic substances

12.3 Bioaccumulative potential

Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)

No data for the mixture as a whole.

The substance has low potential for bioaccumulation.

Bioconcentration factor (BCF) : ≤ 54 (OECD 305E)

Nickel(II) chloride hexahydrate

The substance has no potential for bioaccumulation.

12.4 Mobility in soil

Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1)

No data for the mixture as a whole.

The substance has high mobility in soil. Very soluble (Water)

Nickel(II) chloride hexahydrate

The substance has moderate mobility in soil.

12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6 Other adverse effects

None known.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not allow to enter drains, sewers or watercourses. Dispose of this material and its container as hazardous waste. Disposal should be in accordance with local, state or national legislation.

14. SECTION 14: TRANSPORT INFORMATION

Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.

	ADR/RID	IMDG	IATA/ICAO
14.1 UN number	Not applicable	Not applicable	Not applicable
14.2 UN proper shipping name	Not applicable	Not applicable	Not applicable
14.3 Transport hazard class(es)	Not applicable	Not applicable	Not applicable
14.4 Packing group	Not applicable	Not applicable	Not applicable

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018



GOLD
STANDARD
PHANTOMS

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

14.5	Environmental hazards	Not applicable	Not classified as a Marine Pollutant.	Not applicable
14.6	Special precautions for user	See Section: 2		
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable	Not applicable	Not applicable
14.8	Additional Information	None.		

15. SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture			
15.1.1	EU regulations			
	Authorisations and/or Restrictions On Use	Not restricted		
15.1.2	National regulations	None known.		
15.2	Chemical Safety Assessment	A chemical safety assessment is not required under REACH.		

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Not applicable – V1.0

References:

Harmonised Classification and Existing ECHA registration(s) for Mixture of 5-Chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-2H -isothiazol-3-one (3:1) (CAS No. 55965-84-9) and Nickel(II) chloride hexahydrate (CAS No. 7791-20-0)

Literature References:

1. Goodwin, F.J., R.W.R. Crevel, and A.W. Johnson., 1981, A comparison of three guinea-pig sensitization procedures for the detection of 19 reported human contact sensitizers., Contact Dermatitis. 7:248-258.
2. Morita, H., M. Umeda, and H.I. Ogawa., 1991, Mutagenicity of various chemicals including nickel and cobalt compounds in cultured mouse FM3A cells., Mutation Research. 261:131-137.

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

Classification of the substance or mixture according to Regulation (EC) No. 1272/2008 (CLP)	Classification Procedure
Skin Sens. 1; H317	Threshold Calculation
Aquatic Chronic 3; H412	Summation Calculation

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	vPvT: very Persistent and very Toxic

Hazard classification / Classification code:

Acute Tox. 3; Acute toxicity, Category 3
Acute Tox. 3; Acute toxicity, Category 3
Skin Corr. 1B; Skin corrosion/irritation, Category 1B
Skin Irrit. 2; Skin corrosion/irritation, Category 2
Eye Dam. 1; Eye damage, category 1
Skin Sens. 1; Skin Sensitisation, Category 1
Skin Sens. 1A; Skin Sensitisation, Category 1A
Eye Irrit. 2; Eye Irritation, Category 2
Acute Tox. 3; Acute toxicity, Category 3
Resp. Sens. 1; Respiratory sensitization, Category 1

Muta. 2; Germ cell mutagenicity, Category 2
Carc. 1A; Carcinogenicity, Category 1A

Hazard Statement(s)

H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H317: May cause an allergic skin reaction.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H331: Toxic if inhaled.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341: Suspected of causing genetic defects.
H350: May cause cancer. (Inhalation)

SAFETY DATA SHEET

Version: 1.0 Date: 19th October 2018



GOLD
STANDARD
PHANTOMS

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

Repr. 1B; Reproductive toxicity, Category 1B
STOT RE 1; Specific target organ toxicity — repeated exposure,
Category 1
Aquatic Acute 1; Hazardous to the aquatic environment, Acute, Category
1
Aquatic Chronic 1; Hazardous to the aquatic environment, Chronic ,
Category 1
Aquatic Chronic 3; Hazardous to the aquatic environment, Chronic ,
Category 3

H360D: May damage the unborn child.
H372: Causes damage to organs through prolonged or repeated
exposure.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
H412: Harmful to aquatic life with long lasting effects.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. Gold Standard Phantoms Limited gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. Gold Standard Phantoms Limited accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.