

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Form : Mixture
 Product Name : CAG/CTG PCR Mix

Product Reference #: 145586

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

1.2.1. Relevant identified uses

Use of the substance/mixture : CE-IVD for U.S. Export Only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Company

Asuragen, Inc.
 2150 Woodward Ave Suite 100
 Austin, TX 78744
 T: +1 512-681-5200
 USA, Toll-free T: +1 877-777-1874
 E-mail: support@asuragen.com
 Web address: www.asuragen.com

1.4. Emergency telephone number

Emergency number : Tel: +1 -512-681-5200 US, Toll-free Tel: 1-877-777-1874

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification According to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling According to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

2.3. Other hazards

Other hazards not contributing to the classification : Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification According to Regulation (EC) No. 1272/2008 [CLP]
Dimethyl sulfoxide	(CAS-No.) 67-68-5 (EC-No.) 200-664-3	9,32	Not classified
Ammonium sulfate	(CAS-No.) 7783-20-2 (EC-No.) 231-984-1	0,36	Not classified
Glycerin	(CAS-No.) 56-81-5 (EC-No.) 200-289-5	0,04	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

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- First-aid measures after skin contact : Remove contaminated clothing. Drench affected area with water for at least 5 minutes. Obtain medical attention if irritation develops or persists.
- First-aid measures after eye contact : Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

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

- Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.
- Symptoms/effects after inhalation : Prolonged exposure may cause irritation.
- Symptoms/effects after skin contact : Prolonged exposure may cause skin irritation.
- Symptoms/effects after eye contact : May cause slight irritation to eyes.
- Symptoms/effects after ingestion : Ingestion may cause adverse effects.

4.3. Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray, fog, carbon dioxide (CO₂), alcohol-resistant foam, or dry chemical.
- Unsuitable extinguishing media : Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not considered flammable but may burn at high temperatures.
- Explosion hazard : Product is not explosive.
- Reactivity : Hazardous reactions will not occur under normal conditions.

5.3. Advice for firefighters

- Precautionary measures fire : Exercise caution when fighting any chemical fire.
- Firefighting instructions : Use water spray or fog for cooling exposed containers.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid prolonged contact with eyes, skin and clothing. Avoid breathing (vapor, mist, spray).

6.1.1. For non-emergency personnel

- Protective equipment : Use appropriate personal protective equipment (PPE).
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapors, mist, spray.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures.

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7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
Storage conditions : Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.
Incompatible materials : Strong acids, strong bases, strong oxidizers.

7.3. Specific end use(s)

For Research Use Only. Not for Use in Diagnostic Procedures. (US), CE-IVD for U.S. Export Only (EU)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonium sulfate (7783-20-2)		
Bulgaria	OEL TWA (mg/m ³)	10 mg/m ³
Latvia	OEL TWA (mg/m ³)	0,02 mg/m ³ (hydrate)
Dimethyl sulfoxide (67-68-5)		
Austria	MAK (mg/m ³)	160 mg/m ³
Austria	MAK (ppm)	50 ppm
Austria	OEL chemical category (AT)	Skin notation
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	160 mg/m ³ (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)
Germany	TRGS 900 Occupational exposure limit value (ppm)	50 ppm (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed)
Germany	TRGS 900 chemical category	Skin notation
Switzerland	KZGW (mg/m ³)	320 mg/m ³
Switzerland	KZGW (ppm)	100 ppm
Switzerland	MAK (mg/m ³)	160 mg/m ³
Switzerland	MAK (ppm)	50 ppm
Switzerland	OEL chemical category (CH)	Skin notation
Denmark	Grænseværdie (langvarig) (mg/m ³)	160 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	50 ppm
Estonia	OEL TWA (mg/m ³)	150 mg/m ³
Estonia	OEL TWA (ppm)	50 ppm
Estonia	OEL STEL (mg/m ³)	500 mg/m ³
Estonia	OEL STEL (ppm)	150 ppm
Estonia	OEL chemical category (ET)	Skin notation
Finland	HTP-arvo (8h) (ppm)	50 ppm
Finland	OEL chemical category (FI)	Potential for cutaneous absorption
Lithuania	IPRV (mg/m ³)	150 mg/m ³
Lithuania	IPRV (ppm)	50 ppm
Lithuania	TPRV (mg/m ³)	500 mg/m ³
Lithuania	TPRV (ppm)	150 ppm
Lithuania	OEL chemical category (LT)	Skin notation
Slovenia	OEL TWA (mg/m ³)	160 mg/m ³
Slovenia	OEL chemical category (SL)	Potential for cutaneous absorption
Sweden	nivågränsvärde (NVG) (mg/m ³)	150 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	50 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	500 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	150 ppm
Sweden	OEL chemical category (SE)	Skin notation

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Glycerin (56-81-5)		
Belgium	Limit value (mg/m ³)	10 mg/m ³ (mist)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	10 mg/m ³
France	VME (mg/m ³)	10 mg/m ³ (aerosol)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	200 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-inhalable fraction)
Greece	OEL TWA (mg/m ³)	10 mg/m ³
Spain	VLA-ED (mg/m ³)	10 mg/m ³ (mist)
Switzerland	KZGW (mg/m ³)	100 mg/m ³ (inhalable dust)
Switzerland	MAK (mg/m ³)	50 mg/m ³ (inhalable dust)
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ (mist)
United Kingdom	WEL STEL (mg/m ³)	30 mg/m ³ (calculated-mist)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	10 mg/m ³
Estonia	OEL TWA (mg/m ³)	10 mg/m ³
Finland	HTP-arvo (8h) (mg/m ³)	20 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	10 mg/m ³ (mist)
Ireland	OEL (15 min ref) (mg/m ³)	30 mg/m ³ (calculated-mist)
Poland	NDS (mg/m ³)	10 mg/m ³ (inhalable fraction)
Portugal	OEL TWA (mg/m ³)	10 mg/m ³ (mist)

8.2. Exposure controls

Appropriate engineering controls

: Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal protective equipment

: Gloves. Protective clothing. Protective goggles.



Materials for protective clothing

: Chemically resistant materials and fabrics.

Hand protection

: Wear protective gloves.

Eye and Face Protection

: Chemical safety goggles.

Skin and body protection

: Wear suitable protective clothing.

Respiratory protection

: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other information

: When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: No data available
Odour	: Odorless
Odour threshold	: No data available
pH	: No data available
Evaporation rate	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available

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Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Viscosity	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Hazardous reactions will not occur under normal conditions.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizers.

10.6. Hazardous decomposition products

Nitrogen oxides. Toxic fumes. Corrosive vapors. Sulfur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)

Ammonium sulfate (7783-20-2)	
LD50 oral rat	2840 mg/kg
LD50 dermal rat	> 2000 mg/kg
Dimethyl sulfoxide (67-68-5)	
LD50 oral rat	> 20000 mg/kg
LD50 dermal rat	≈ 40000 mg/kg
LC50 inhalation rat (mg/l)	> 5,33 mg/l/4h
Glycerin (56-81-5)	
LD50 oral rat	12600 mg/kg
LD50 dermal rabbit	> 10 g/kg
LC50 inhalation rat (mg/l)	> 570 mg/m ³ (Exposure time: 1 h)

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)

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STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)
Symptoms/Injuries After Inhalation	: Prolonged exposure may cause irritation.
Symptoms/Injuries After Skin Contact	: Prolonged exposure may cause skin irritation.
Symptoms/Injuries After Eye Contact	: May cause slight irritation to eyes.
Symptoms/Injuries After Ingestion	: Ingestion may cause adverse effects.
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified.

Ammonium sulfate (7783-20-2)

LC50 fish 1	53 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
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EC50 Daphnia 1	121,7 mg/l (Exposure time: 48 h - Species: Daphnia magna)
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Dimethyl sulfoxide (67-68-5)

LC50 fish 1	34 g/l (Exposure time: 96 h - Species: Pimephales promelas)
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LC50 fish 2	33 - 37 g/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
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Glycerin (56-81-5)

LC50 fish 1	54000 (51000 - 57000) mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
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12.2. Persistence and degradability

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Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.
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Ammonium sulfate (7783-20-2)

Log Pow	-5,1 (at 25 °C)
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Dimethyl sulfoxide (67-68-5)

Log Pow	-2,03
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Glycerin (56-81-5)

BCF fish 1	(no bioaccumulation)
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Log Pow	-1,76
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal : Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Ecology - waste materials : Avoid release to the environment.

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SECTION 14: Transport information

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued. In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not regulated for transport				
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No

14.6. Special precautions for user

No additional information available

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Ammonium sulfate (7783-20-2)

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

Dimethyl sulfoxide (67-68-5)

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

Glycerin (56-81-5)

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

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Date of Preparation or Latest Revision : 27/06/2018

Data sources : Information and data obtained and used in the authoring of this safety data sheet could come from database subscriptions, official government regulatory body websites, product/ingredient manufacturer or supplier specific information, and/or resources that include substance specific data and classifications according to GHS or their subsequent adoption of GHS.

Other information : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Indication of Changes No additional information available

Abbreviations and Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists
ADN – European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

MARPOL - International Convention for the Prevention of Pollution
NDS - Najwyższe Dopuszczalne Stezenie
NDSCh - Najwyższe Dopuszczalne Stezenie Chwilowe
NDSPP - Najwyższe Dopuszczalne Stezenie Pulapowe
NOAEL - No-Observed Adverse Effect Level

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ATE - Acute Toxicity Estimate	NOEC - No-Observed Effect Concentration
BCF - Bioconcentration Factor	NRD - Nevirsytinas Ribinis Dydis
BEI - Biological Exposure Indices (BEI)	NTP - National Toxicology Program
BOD - Biochemical Oxygen Demand	OEL - Occupational Exposure Limits
CAS No. - Chemical Abstracts Service Number	PBT - Persistent, Bioaccumulative and Toxic
CLP - Classification, Labeling and Packaging Regulation (EC) No 1272/2008	PEL - Permissible Exposure Limit
COD - Chemical Oxygen Demand	pH - Potential Hydrogen
EC - European Community	REACH - Registration, Evaluation, Authorisation, and Restriction of Chemicals
EC50 - Median Effective Concentration	RID - Regulations Concerning the International Carriage of Dangerous Goods by Rail
EEC - European Economic Community	SADT - Self Accelerating Decomposition Temperature
EINECS - European Inventory of Existing Commercial Chemical Substances	SDS - Safety Data Sheet
EmS-No. (Fire) - IMDG Emergency Schedule Fire	STEL - Short Term Exposure Limit
EmS-No. (Spillage) - IMDG Emergency Schedule Spillage	TA-Luft - Technische Anleitung zur Reinhaltung der Luft
EU - European Union	TEL TRK - Technical Guidance Concentrations
ErC50 - EC50 in Terms of Reduction Growth Rate	ThOD - Theoretical Oxygen Demand
GHS - Globally Harmonized System of Classification and Labeling of Chemicals	TLM - Median Tolerance Limit
IARC - International Agency for Research on Cancer	TLV - Threshold Limit Value
IATA - International Air Transport Association	TPRD - Trumpalaikio Poveikio Ribinis Dydis
IBC Code - International Bulk Chemical Code	TRGS 510 - Technische Regel für Gefahrstoffe 510 - Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
IMDG - International Maritime Dangerous Goods	TRGS 552 - Technische Regeln für Gefahrstoffe - N-Nitrosamine
IPRV - Ilgalaikio Poveikio Ribinis Dydis	TRGS 900 - Technische Regel für Gefahrstoffe 900 - Arbeitsplatzgrenzwerte
IOELV - Indicative Occupational Exposure Limit Value	TRGS 903 - Technische Regel für Gefahrstoffe 903 - Biologische Grenzwerte
LC50 - Median Lethal Concentration	TSCA - Toxic Substances Control Act
LD50 - Median Lethal Dose	TWA - Time Weighted Average
LOAEL - Lowest Observed Adverse Effect Level	VOC - Volatile Organic Compounds
LOEC - Lowest-Observed-Effect Concentration	VLA-EC - Valor Límite Ambiental Exposición de Corta Duración
Log Koc - Soil Organic Carbon-water Partitioning Coefficient	VLA-ED - Valor Límite Ambiental Exposición Diaria
Log Kow - Octanol/water Partition Coefficient	VLE - Valeur Limite D'exposition
Log Pow - Ratio of the equilibrium concentration (C) of a dissolved substance in a two-phase system consisting of two largely immiscible solvents, in this case octanol and water	VME - Valeur Limite De Moyenne Exposition
MAK - Maximum Workplace Concentration/Maximum Permissible Concentration	vPvB - Very Persistent and Very Bioaccumulative
	WEL - Workplace Exposure Limit
	WGK - Wassergefährdungsklasse

EU GHS SDS

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.