

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: PATsmart™ ZipChip® Charge Variant Analysis Reagents

Synonyms: ZipChip Charge Variant Analysis Additive, ZipChip Charge Variant Analysis BGE, ZipChip Charge Variant Analysis Diluent

1.2 Recommended Use and Restrictions on Use

Use Of The Substance/Mixture : For research and development use only.

Restrictions On Use : Not for use in diagnostic procedures

1.3. Name, Address, and Telephone of the Responsible Party

Company

Repligen Corporation

111 Locke Drive

Marlborough, MA 01752

USA

+1 508-845-6400

customerserviceUS@repligen.com

1.4. Emergency Telephone Number

Emergency Number : VelocityEHS
(800)255-3924 (North America)
+1 (813)248-0585 (International)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US Classification

Flammable liquid, Category 3

H226

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



GHS02

Signal Word (GHS-US)

: Warning

Hazard Statements (GHS-US)

: H226 - Flammable liquid and vapor.

Precautionary Statements (GHS-US)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment.
P241 - Use explosion-proof equipment.
P242 - Use non-sparking tools.
P243 - Take action to prevent static discharges.
P280 - Wear eye protection, protective gloves and clothing.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P370+P378 - In case of fire: Use appropriate media to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3 Hazards associated with known or reasonably anticipated uses

(If this product is used in unforeseeable chemical processes and not used as intended or reasonable, the hazards listed in Section 2.3 cannot cover all chemistries. Therefore, a Process Hazard Analysis (PHA) or other hazard assessment for additional specific end

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uses should be performed to ensure that hazards are fully understood, and adequate safety measures are in place. See Section 10 for relevant reactivity and stability information)

2.4. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.5. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	%	GHS US classification
Isopropyl alcohol	2-Hydroxypropane / 2-Propyl alcohol / 2-Propanol / Isopropanol / Propan-2-ol / ISOPROPYL ALCOHOL / Propanol, 2- / Isopropyl alcohol	(CAS-No.) 67-63-0	5 – 10	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336
Dimethyl sulfoxide	Dimethyl sulphoxide / Durasorb / Methane, sulfinylbis- / Methylsulfinylmethane / Sulfinylbis(methane) / Sulfoxide, dimethyl / Methane, 1,1'-sulfinylbis- / Dimethylsulphoxide / Dimethylsulfoxide / DMSO	(CAS-No.) 67-68-5	1 – 5	Flam. Liq. 4, H227

Full text of H-phrases: see section 16

* The actual concentration of ingredient(s) is withheld as a trade secret in accordance with the 29 CFR 1910.1200. Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

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.

First-aid Measures After Skin Contact: Immediately remove contaminated clothing. Drench affected area with water for at least 5 minutes. In case of contamination of larger areas, rinse skin with water/shower. 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/Injuries: Not expected to present a significant hazard under anticipated conditions of normal use.

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.

Chronic Symptoms: None expected under normal conditions of use.

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: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂). Water may be ineffective but water should be used to keep fire-exposed container cool.

Unsuitable Extinguishing Media: Do not use a heavy water stream. A heavy water stream may spread burning liquid.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Flammable liquid and vapor. Does not sustain combustion. Flashes only.

Explosion Hazard: May form flammable or explosive vapor-air mixture.

Reactivity: Reacts violently with strong oxidizers. Increased risk of fire or explosion.

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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. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
- Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.
- Hazardous Combustion Products:** Oxides of carbon, nitrogen, and sulfur.
- Other Information:** Alcohol resistant foams are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid breathing (vapor, mist, spray). Do not get in eyes, on skin, or on clothing. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Use special care to avoid static electric charges.

6.1.1. For Non-Emergency Personnel

- Protective Equipment:** Use appropriate personal protective equipment (PPE).
- Emergency Procedures:** Evacuate unnecessary personnel. Stop leak if safe to do so.

6.1.2. For Emergency Personnel

- Protective Equipment:** Equip cleanup crew with proper protection.
- Emergency Procedures:** Eliminate ignition sources first, then ventilate the area. 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.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

- For Containment:** As an immediate precautionary measure, isolate spill or leak area in all directions. 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. Absorb and/or contain spill with inert material. Do not take up in combustible material such as: saw dust or cellulosic material. Contact competent authorities after a spill. Transfer spilled material to a suitable container for disposal. Use only non-sparking tools.

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

- Additional Hazards When Processed:** Handle empty containers with care because residual vapors are flammable.
- 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. Take precautionary measures against static discharge. Use only non-sparking tools.
- Handling Temperature:** No temperature range given. See Section 9 for Flash Point information.
- Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

- Technical Measures:** Comply with applicable regulations. Take action to prevent static discharges. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment.
- Storage Conditions:** Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store in a well-ventilated place. Keep container tightly closed. Keep in fireproof place.
- Incompatible Materials:** Strong acids, strong bases, strong oxidizers.
- Storage Temperature:** No temperature range given. See Section 9 for Flash Point information.
- Storage Area:** Store in a well-ventilated place. Keep cool.

7.3. Specific End Use(s)

For research and development use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Isopropyl alcohol (67-63-0)		
USA ACGIH	ACGIH® TLV® TWA	200 ppm
USA ACGIH	ACGIH® TLV® STEL	400 ppm

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USA ACGIH	ACGIH® chemical category	Not Classifiable as a Human Carcinogen
USA ACGIH	BEI	40 mg/l Parameter: Acetone - Medium: urine - Sampling time: end of shift at end of workweek (background, nonspecific)
USA NIOSH	NIOSH REL TWA	980 mg/m ³
USA NIOSH	NIOSH REL TWA	400 ppm
USA NIOSH	NIOSH REL STEL	1225 mg/m ³
USA NIOSH	NIOSH REL STEL	500 ppm
USA IDLH	IDLH	2000 ppm (10% LEL)
USA OSHA	OSHA PEL TWA	980 mg/m ³
USA OSHA	OSHA PEL TWA	400 ppm
Dimethyl sulfoxide (67-68-5)		
USA AIHA	WEEL TWA	250 ppm

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. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment.

Personal Protective Equipment

: Gloves. Protective clothing. Protective goggles or glasses. Face shield. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing

: Chemically resistant materials and fabrics. Wear fire/flamm resistant/retardant clothing.

Hand Protection

: Wear protective gloves.

Eye and Face Protection

: Chemical goggles or safety glasses. Faceshield as determined by task.

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.

Thermal Hazard Protection

: Wear fire/flamm resistant/retardant clothing.

Environmental Exposure Controls

: Avoid unnecessary release into the environment.

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
Color	: Clear, colorless liquid
Odor	: Slight alcohol-like
pH	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: ≈ 41 °C [Estimation only] (105.8 °F)
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapor Pressure	: No data available
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Solubility	: Water: Soluble
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity, Kinematic	: No data available
Particle Aspect Ratio	: Not applicable

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Particle Aggregation State	: Not applicable
Particle Agglomeration State	: Not applicable
Particle Specific Surface Area	: Not applicable
Particle Dustiness	: Not applicable

9.2. Other Information

No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reacts violently with strong oxidizers. Increased risk of fire or explosion.

10.2. Chemical Stability

Flammable liquid and vapor. May form flammable or explosive vapor-air mixture.

10.3. Possibility of Hazardous Reactions, Including those Associated with Foreseeable Emergencies

Hazardous polymerization will not occur.

10.4. Conditions to Avoid

Direct sunlight, extremely high or low temperatures, heat, hot surfaces, sparks, open flames, incompatible materials, and other ignition sources.

10.5. Incompatible Materials

Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products

Thermal decomposition may produce: Oxides of carbon, nitrogen, and sulfur.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Likely Routes of Exposure: Dermal, Ingestion, Inhalation, Eye contact

Acute Toxicity (Oral): Not classified.

Acute Toxicity (Dermal): Not classified.

Acute Toxicity (Inhalation): Not classified.

Isopropyl alcohol (67-63-0)	
LD50 Oral Rat	1870 mg/kg (No deaths - not classifiable)
LD50 Dermal Rabbit	12956 mg/kg (16.4 mL/kg bw)
LC50 Inhalation Rat	> 10000 ppm (Exposure time: 6 h Source: ECHA_API)
ATE (Dermal)	12,956.00 mg/kg body weight
Dimethyl sulfoxide (67-68-5)	
LD50 Oral Rat	28300 mg/kg (Source: OECD_SIDS)
LD50 Dermal Rat	40000 mg/kg (Source: ECHA_API)
LC50 Inhalation Rat	> 5.33 mg/l/4h
LC50 Inhalation Rat	5.33 mg/l/4h

Skin Corrosion/Irritation: Not classified.

Serious Eye Damage/Irritation: Not classified.

Respiratory or Skin Sensitization: Not classified.

Germ Cell Mutagenicity: Not classified.

Carcinogenicity: Not classified.

Isopropyl alcohol (67-63-0)	
IARC group	3

Reproductive Toxicity: Not classified.

Specific Target Organ Toxicity (Single Exposure): Not classified.

Specific Target Organ Toxicity (Repeated Exposure): Not classified.

Aspiration Hazard: Not classified.

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.

Chronic Symptoms: None expected under normal conditions of use.

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SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Isopropyl alcohol (67-63-0)	
LC50 Fish 1	9640 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through] Source: IUCLID)
EC50 - Crustacea [1]	13299 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Other Aquatic Organisms 1	1000 mg/l (Exposure time: 96 h - Species: Desmodesmus subspicatus)
LC50 Fish 2	11130 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static] Source: IUCLID)
EC50 Other Aquatic Organisms 2	1000 mg/l (Exposure time: 72 h - Species: Desmodesmus subspicatus)
ErC50 (Algae)	1000 mg/l
NOEC Chronic Crustacea	100 mg/l
Dimethyl sulfoxide (67-68-5)	
LC50 Fish 1	34000 mg/l (Exposure time: 96 h - Species: Pimephales promelas Source: EPA)
EC50 - Crustacea [1]	6830 mg/l
LC50 Fish 2	33 – 37 g/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static] Source: IUCLID)

12.2. Persistence and Degradability

PATsmart™ ZipChip® Charge Variant Analysis Reagents	
Persistence and Degradability	Expected to be biodegradable.

12.3. Bioaccumulative Potential

PATsmart™ ZipChip® Charge Variant Analysis Reagents	
Bioaccumulative Potential	Not expected to bioaccumulate.
Isopropyl alcohol (67-63-0)	
Partition coefficient n-octanol/water (Log Pow)	0.05 (at 25 °C)
Dimethyl sulfoxide (67-68-5)	
Partition coefficient n-octanol/water (Log Pow)	-1.35 (at 20 °C (at pH 7)

12.4. Mobility in Soil

PATsmart™ ZipChip® Charge Variant Analysis Reagents	
Ecology - Soil	Adsorbs into the soil. Leaches if exposed to water.

12.5. Other Adverse Effects

Other Adverse Effects	: None known.
Other Information	: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste Treatment Methods: Incineration is the preferred method for disposal of waste product. . Can be landfilled, when in compliance with local regulations.

Sewage Disposal Recommendations: Do not dispose of waste into sewer. Do not empty into drains.

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Handle empty containers with care because residual vapors are flammable.

Ecology - Waste Materials: Avoid unnecessary release into the environment.

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.

14.1. In Accordance with DOT

Not classified for transport under 49CFR173.150(e).

14.2. In Accordance with IMDG

Not classified for transport under IMDG Special Provision 144.

14.3. In Accordance with IATA

Not classified for transport under IATA Special Provision A58.

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SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

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SARA Section 311/312 Hazard Classes	Physical hazard - Flammable (gases, aerosols, liquids, or solids)
Isopropyl alcohol (67-63-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 % (only if manufactured by the strong acid process, no supplier notification)
Dimethyl sulfoxide (67-68-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	

15.2. US State Regulations

Isopropyl alcohol (67-63-0)	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) List	
U.S. - Massachusetts - Right To Know List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
Dimethyl sulfoxide (67-68-5)	
U.S. - New Jersey - Right to Know Hazardous Substance List	

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision	: 01/05/2026
Other Information	: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 * The actual concentration of ingredient(s) is withheld as a trade secret in accordance with the 29 CFR 1910.1200. Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

GHS Full Text Phrases:

H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H227	Combustible liquid
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness

Glossary of Data Source Abbreviations

ATSDR: Agency for Toxic Substances and Disease Registry (U.S. Department of Health and Human Services)	FOOD_JOURN: Food Research Journal (1956)
AU_WES: Australia WES	IARC: The International Agency for Research on Cancer
CHEMVIEW: ChemView (U.S. Environmental Protection Agency)	IDLH: National Institute for Occupational Health and Safety Immediately Dangerous to Life or Health Value Profiles
EC_RAR: European Commission Renewal Assessment Report	IUCLID: International Uniform Chemical Information Database
EC_SCOEL: European Commission Scientific Committee on Occupational Exposure Limits	JAPAN_GHS: Japan GHS Basis for Classification Data
ECETOC: European Centre for Ecotoxicology and Toxicology of Chemicals Reports	JP_J-CHECK: Japan J-Check
ECHA_API: European Chemicals Agency API	KR_NIER: South Korea National Institute of Environmental Research Evaluations
ECHA_RAC: ECHA Committee for Risk Assessment	NICNAS: Australia National Industrial Chemicals Notification and Assessment Scheme
EFSA: European Food Safety Authority	NIOSH: National Institute for Occupational Health and Safety (U.S. Department of Health and Human Services)
EPA: U.S. Environmental Protection Agency	NLM_CIP: National Library of Medicine ChemID plus database
EPA_AEGL: Acute Exposure Guideline Levels (U.S. Environmental Protection Agency)	NLM_HSDB: National Library of Medicine Hazardous Substance Data Bank
EPA_FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act Reregistration Eligibility Decision (U.S. Environmental Protection Agency)	NLM_PUBMED: National Library of Medicine PubMed database
EPA_HPV: High Production Volume Chemicals (U.S. Environmental Protection Agency)	NTP: National Toxicology Program
EPA_TRED: Risk Assessment for Tolerance Reassessment Eligibility Decision	NZ_CCID: New Zealand Chemical Classification and Information Database
	OECD_EHSP: Environment, Health, and Safety Publication (Organisation for Economic Co-operation and Development)

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(U.S. Environmental Protection Agency)	OECD_SIDS: Screening Information Data Sets (Organisation for Economic Co-operation and Development)
EU_CLH: European Union Harmonised Classification and Labelling Proposal	WHO: World Health Organization
EU_RAR: European Union Risk Assessment Report	

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.

SDS US (GHS HazCom)