Section 1: Information

1. Product Identification
   1.1. Name: Acridine Orange Propidium Iodide (AOPI)
   1.2. C.A.S. Number: 65-64-2
   1.3. Catalog Number:
      1.3.1. ViaStain™ AOPI Staining Solution, Cat. No.: CS2-0106-5mL, 5 mL
      1.3.2. ViaStain™ AOPI Staining Solution, Cat. No.: CS2-0106-25mL, 25 mL
      1.3.3. ViaStain™ AOPI Staining Solution, Cat. No.: CS2-0106-1mL, 1 mL
      1.3.4. ViaStain™ AOPI Yeast Kit for Live/Dead Concentration, Cat. No.: CSK-0102-2mL, 2 mL
      1.3.5. ViaStain™ AOPI Yeast Kit for Live/Dead Concentration, Cat. No.: CSK-0102-10mL,10 mL
      1.3.6. ViaStain™ AOPI Yeast Kit for Live/Dead Concentration, Cat. No.: CSK-0102-S, 100 µL
      1.3.7. ViaStain™ Yeast Live/Dead Viability Kit for Cellulosic Ethanol, Cat. No.: CSK-0130-1, 10 mL
      1.3.8. ViaStain™ Yeast Live/Dead Viability Kit for Cellulosic Ethanol, Cat. No.: CSK-0130-1, 500 µL

   1.4. Supplier

Nexcelom Bioscience, LLC.
360 Merrimack St., Building 9
Lawrence, MA 01843
Phone Number: 1(978) 327-5340
Hours of Operation: 9am-5pm EST

Nexcelom Bioscience, Ltd.
Unit 5, Rutherford House
Pencroft Way,
Manchester Science Park
Manchester. M15 6SZ. UK
Phone Number: 0161-232-4592

   1.5. Emergency Number: Please contact the appropriate local emergency response provider
   1.6. R.E.A.C.H Registration Number: No registration number is given yet for the substance/substances in this mixture since the annual import quantity is less than the required one tonnage per annum
2. Recommended Use
   2.1. Acridine Orange Propidium Iodide should only be used as a nuclear staining reagent for detecting the total number of live and dead cells
   2.2. Acridine Orange Propidium Iodide is not intended to be used as a human or animal diagnostic or a therapeutic reagent, it is intended for research use only
   2.3. Do not use Propidium Iodide for any other purposes

Section 2: Hazard Identification

1. Hazard Classification
   1.1. H315 Skin irritation — Category: 2
   1.2. H319 Eye Irritation — Category: 2

1.3. H341 Germ cell mutagenicity Category: 2
1.4. H335 Specific target organ toxicity – single exposure Category: 3 – Respiratory system
1.5. H412 Toxic to aquatic life Category: Aquatic Acute – 3
Aquatic Chronic – 3
For the full text of H-Statements please reference Section 16
1.6. R36/37/38 Xl – Irritant
1.7. R68 Xn – Harmful
For the full text of R-phrases please reference Section 16

2. Label Elements
2.1. Signal Words: Warning
2.2. Hazard Statements:
2.2.1. H315 Causes skin irritation
2.2.2. H319 Causes serious eye irritation
2.2.3. H335 May cause respiratory irritation
2.2.4. H341 Suspected of causing genetic defects
2.3. Precautionary Statements:
2.3.1. P201 Obtain special instructions before use
2.3.2. P280 Wear eye protection/face protection
2.3.3. P305 + P351 + P338 IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, then continue rinsing
2.3.4. P308 + P313 If exposed or concerned seek medical advice/attention
2.3.5. P337 + P313 If eye irritation persists seek medical advice/attention
2.4. Supplemental Hazard Statements: None
2.5. Pictograms:
2.5.1. 
2.6. Other Hazards Which Do Not Result in Classification
2.6.1. None of the components are considered to be persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1 % or higher

Section 3: Composition and Information on Ingredients

1. Substance: Acridine Orange
1.1. Hazardous Component: None
1.2. Synonyms
1.2.1. AO
1.3. Hazardous component molecular formula: $C_{17}H_{19}N_3$
1.4. Hazardous component molecular weight: 265.36 g/mol
2. Substance: Propidium Iodide

2.1. Hazardous Component: Propidium Iodide
2.2. Synonyms
2.2.1. 3,8-Diamino-5-[3-(diethylmethylammonio)propyl]-6-phenylphenanthridinium
2.3. Hazardous component molecular formula: $C_{27}H_{34}I_2N_4$
2.4. Hazardous component molecular weight: 668.39 g/mol

3. Substance: Phosphate Buffered Saline
3.1. Hazardous Component: Potassium chloride
3.2. Synonyms
3.2.1. PBS
3.3. Hazardous component molecular formula: KCl
3.4. Hazardous component molecular weight: 74.5513 g/mol

Common Name	Classification	CAS Number/IUPAC Name	EC-Number	M-Factor	Percentage
Potassium chloride	Aquatic Acute: 3 Aquatic Chronic: 3 H412	7447-40-7	231-211-8	N/A	98 % - 99.9 %
Propidium Iodide	Skin irritant: 2 Eye irritant: 2 Germ Cell Mutagenicity: 2 STOT SE: 3 H315, H319, H335, H341	25535-16-4	247-081-0	N/A	0.1 % - 2 %
Acridine Orange	N/A	65-61-2	200-614-0	N/A	0.1 % - 2 %

Section 4: First-aid Measures

1. Always remove contaminated personnel away from the hazardous area and to a safe area
2. Most Important Symptoms and Effects
2.1. No information available
2.2. See Section 11
3. Indication of Immediate Medical Attention or Necessary Special Treatment
3.1. No information available
4. Medical Professionals
4.1. If medical advice or attention is required, present them with this safety data sheet first
4.2. Notes to Physician: Treat symptomatically
5. Inhalation
5.1. Place person in fresh air and in a comfortable position for breathing
5.2. Seek medical advice or attention

6. Skin Contact
   6.1. Remove any contaminated clothing, and wash area with soap and plenty of water for 15 minutes
   6.2. Wash clothes before re-use
   6.3. Seek medical advice or attention
7. Eye Contamination
   7.1. Flush open eyes for 15 minutes
   7.2. If contacts are present, remove contacts after first 15-minute wash and flush for an additional 15 minutes
   7.3. Seek medical advice or attention
8. Ingestion
   8.1. Do not induce vomiting
   8.2. Drink plenty of water
   8.3. Never give an unconscious person anything by mouth
   8.4. Seek medical advice or attention

Section 5: Fire-fighting Measures

1. Suitable Extinguishing Media
   1.1. Carbon dioxide
   1.2. Dry chemical extinguishers
   1.3. Alcohol resistant foam extinguishers
   1.4. Water
2. Not Suitable Extinguishing Media
   2.1. No information available
3. Specific Hazards Arising from the Chemical
   3.1. Carbon oxides
4. Special Protective Actions for Fire-fighters
   4.1. Wear a self-contained breathing apparatus for firefighting if necessary
5. Further Information
   5.1. No information available

Section 6: Accidental Release Measures

1. Personal Precautions
   1.1. Use proper personal protective equipment
   1.2. Avoid dust formation
   1.3. Avoid breathing vapors, mists, or gases
   1.4. Ensure adequate ventilation
   1.5. Avoid breathing dust
   1.6. See Section 8
2. Protective Equipment
   2.1. Use proper personal protective equipment

3. Emergency Procedures
   3.1. See Section 5
4. Accidental Spills or Release of the Product
   4.1. Wear proper protective equipment while cleaning up spills
   4.2. Remove ignition sources and provide adequate ventilation
   4.3. Contact emergency personnel if required
5. Emergency Responders
   5.1. Personal Protective Equipment
      5.1.1. See Section 5
6. Environmental Precautions
   6.1. Do not let product enter drains
7. Methods and Materials for Containment and Cleaning
   7.1. Drains
      7.1.1. Do not let product enter drains
   7.2. Capping procedures
      7.2.1. No information available
   7.3. Neutralization techniques
      7.3.1. No information available
   7.4. Decontamination techniques
      7.4.1. No information available
   7.5. Absorbent Materials
      7.5.1. Inert absorbent materials
   7.6. Cleaning Techniques
      7.6.1. Contain spillage
      7.6.2. Soak up with inert absorbent material
      7.6.3. Keep in a suitable closed container
      7.6.4. For disposal see Section 13
   7.7. Vacuuming Techniques
      7.7.1. No information available
   7.8. Special Equipment
      7.8.1. No information available

Section 7: Handling and Storage

1. Safe Handling
   1.1. Avoid contact with skin and eyes
   1.2. Avoid formation of dusts and aerosols
2. Incompatible Substances
   2.1. No information available
3. Operations and Conditions to Avoid
   3.1. Avoid formation of dusts and aerosols
4. General Good Hygiene Practices
   4.1. No eating, drinking or smoking in work areas

4.2. Wash hands after breaks and at the end of the work day
4.3. Remove contaminated clothing and protective equipment before entering eating areas

5. Conditions for Safe Storage
   5.1. Store at 4 °C
   5.2. Conditions to avoid
      5.2.1. No information available
   5.3. Environmental Effects to avoid
      5.3.1. No information available
6. How to maintain product integrity
   6.1. Keep container tightly closed in a dry and well-ventilated place
   6.2. Keep in a dry place
7. Engineering Advice
   7.1. Provide appropriate exhaust ventilation at places where dusts can be formed

Section 8: Exposure Controls and Personal Protection

1. National Exposure Limits
   1.1. Substance: Propidium Iodide
      1.1.1. CAS No.: 25535-16-4

Country	TWA (8-hour weighted average)		Short -Term Limits/Excursion Limits (STEL)		Biological Limit Value
	ppm	mg/m^3	ppm	mg/m^3	
Austria	-	-	-	-	-
Belgium	-	-	-	-	-
Bulgaria	-	-	-	-	-
Croatia	-	-	-	-	-
Cyprus	-	-	-	-	-
Czech Republic	-	-	-	-	-
Denmark	-	-	-	-	-
Estonia	-	-	-	-	-
Finland	-	-	-	-	-
France	-	-	-	-	-
Germany	-	-	-	-	-
Greece	-	-	-	-	-
Hungary	-	-	-	-	-
Ireland	-	-	-	-	-
Italy	-	-	-	-	-
Latvia	-	-	-	-	-
Lithuania	-	-	-	-	-
Luxembourg	-	-	-	-	-
Malta	-	-	-	-	-

Netherlands	-	-	-	-	-
Poland	-	-	-	-	-
Portugal	-	-	-	-	-
Romania	-	-	-	-	-
Slovakia	-	-	-	-	-
Slovenia	-	-	-	-	-
Spain	-	-	-	-	-
Sweden	-	-	-	-	-
United Kingdom	-	-	-	-	-

2. Appropriate Engineering Controls
   2.1. Handle with good industrial hygiene and safety practices
   2.2. Wash hands before breaks and at the end of the workday
3. Exposure Controls
   3.1. Always use good occupational hygiene practices
      3.1.1. Do not eat, drink, or smoke while using this product
      3.1.2. Wash hands before breaks and at the end of the work day
      3.1.3. Regularly clean equipment, work area, and clothing
   3.2. Eye and face protection
      3.2.1. Use safety glasses with side-shields conforming to EN166 or equipment for eye protection tested and approved under appropriate government standards such as NIOSH (U.S.A.) or EN 166 (E.U.)
   3.3. Skin protection
      3.3.1. Wear impervious clothing and handle with gloves
      3.3.2. Gloves must be inspected prior to use
      3.3.3. Use proper removal technique (without touching glove's outer surface) to avoid skin contact with this product
      3.3.4. Dispose of contaminated gloves after use in accordance with applicable laws (outlined in Section 13) and good laboratory practices
      3.3.5. Wash hands with soap and plenty of water after use
   3.4. Respiratory Protection
      3.4.1. No information available
   3.5. Thermal Hazards
      3.5.1. No information available
4. Environmental Exposure Controls
   4.1. Do not let product enter drains

Section 9: Physical and Chemical Properties

Property	Data
Physical State	Liquid
Color	Red/reddish orange

Odor	No information available
Odor Threshold	No information available
Freezing Point	No information available
Melting Point	No information available
Boiling point or Initial Boiling Point/Range	No information available
Flammability	No information available
Lower and Upper Explosion Limit/Flammability Limit	No information available
Flash Point	No information available
Auto-Ignition Temperature	No information available
Explosive Properties	No information available
Decomposition Temperature	No information available
Oxidizing Properties	No information available
pH	No information available
Viscosity	No information available
Solubility	High in water
Partition Coefficient n-octanol/water (Log value)	No information available
Vapor Pressure	No information available
Density and/or Relative Density	No information available
Relative Vapor Density	No information available
Particle Characteristics	No information available
Evaporation Rate	No information available
Surface Tension	No information available

Section 10: Stability and Reactivity

1. Reactivity
   1.1. No information available
2. Chemical Stability
   2.1. Stable under recommended storage conditions
3. Possibility of Hazardous Reactions
   3.1. No information available
4. Conditions to avoid
   4.1. Heat, flames, and sparks
5. Incompatible Materials
   5.1. Strong oxidizing agents and strong acids
6. Hazardous Decomposition Products
   6.1. Formed under fire: Carbon oxides
   6.2. Other decomposition products: No information available

Section 11: Toxicological Information

1. Acute Toxicity
   1.1. No information available

2. Skin Corrosion/Irritation
   2.1. May cause irritation in susceptible people
3. Serious Eye Damage/Irritation
   3.1. May cause irritation in susceptible people
4. Respiratory or Skin Sensitization
   4.1. May cause irritation in susceptible people
5. Repeated Dose Toxicity
   5.1. No information available
6. Germ Cell Mutagenicity
   6.1. No information available
7. Carcinogenicity
   7.1. IARC
      7.1.1. No component of this product present at levels greater than or equal to 0.1 % is identified as probable, possible, or confirmed human carcinogen by IARC
8. Reproductive Toxicity
   8.1. No information available
9. Specific Target Organ Toxicity- Single Exposure
   9.1. No information available
10. Specific Target Organ Toxicity – Repeated Exposure
    10.1. No information available
11. Aspiration Hazard
    11.1. No information available
12. Likely Routes of Exposure
    12.1. Skin
    12.2. Eyes
    12.3. Inhalation
13. Symptoms Related to Physical, Chemical, and Toxicological Characteristics
    13.1. No information available
14. Delayed and Immediate Effects
    14.1.Short Term Exposure
       14.1.1. No information available
    14.2.Long Term Exposure
       14.2.1. No information available
15. Interactive Effects
    15.1. No information available
16. Other Information
    16.1.Registry of Toxic Effects of Chemical Substances
       16.1.1. None to report
    16.2.Liver irregularities – Based on human evidence

Section 12: Ecological Information

1. Ecotoxicity: May cause long-lasting, harmful effects to aquatic life
   - 1.1. Fish
     - 1.1.1. No information available
   - 1.2. Crustaceans
     - 1.2.1. No information available
   - 1.3. Algae
     - 1.3.1. No information available
   - 1.4. Other Aquatic Plants
     - 1.4.1. No information available
   - 1.5. Soil Micro- and Macro-Organisms
     - 1.5.1. No information available
   - 1.6. Birds
     - 1.6.1. No information available
   - 1.7. Bees
     - 1.7.1. No information available
   - 1.8. Plants
     - 1.8.1. No information available
   - 1.9. Inhibition of Micro-Organisms
     - 1.9.1. No information available
   - 1.1. Impact on Sewage Treatment Plants
     - 1.1.1. See Section 13
2. Persistence and Degradability
   - 2.1. No information available
3. Bioaccumulative Potential
   - 3.1. No information available
4. Mobility in Soil
   - 4.1. No information available
5. Other Adverse Effects
   - 5.1. Environmental Fate
     - 5.1.1. No information available
   - 5.2. Ozone Depletion Potential
     - 5.2.1. No information available
   - 5.3. Photochemical Ozone Creation Potential
     - 5.3.1. No information available
   - 5.4. Endocrine Disrupting Potential and/or Global Warming Potential
     - 5.4.1. No information available

Section 13: Disposal Considerations

1. Disposal Methods
   1.1. Please take precautions to generate as little waste as possible while handling and using this product
   1.2. Do not dispose of contaminated materials in the sewage
   1.3. Packaging, containers, solutions and any material that may have come in contact with this product should be considered as hazardous as the product itself
   1.4. Disposal of this product and any of its by-products should be in compliance with all applicable local, regional and national/federal biological hazardous waste disposal regulations

Section 14: Transport Information

1. European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
   1.1. No information available
2. Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)
   2.1. No information available
3. European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)
   3.1. No information available
4. UN Number: No information available
5. UN Proper Shipping Name: No information available
6. Transport Hazard Class: No information available
7. Packing Group: No information available
8. Environmental Hazards
   8.1. No information available
9. Special Precautions for the User
   9.1. No information available
10. Transport in bulk according to Annex II of MARPOL 73/78
    10.1.Not applicable
    10.2.International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code): Not applicable

Section 15: Regulatory Information

1. Safety Regulations/Legislations
   1.1. No information available
2. Health Regulations/Legislations
   2.1. No information available
3. Environmental Regulations/Legislations
   3.1. No information available
4. Chemical Safety Assessment

4.1. No chemical safety assessment information is available

Section 16: Other Information

1. Literary references
   1.1. H statements according to Regulation (EC) No. 1272/2008
      1.1.1. H315 Causes skin irritation
      1.1.2. H319 Causes serious eye irritation
      1.1.3. H335 May cause respiratory irritation
      1.1.4. H341 suspected of causing genetic defects
      1.1.5. STOT SE Specific Target Organ Toxicity – Single exposure
   1.2. R-phrases according to EU Directives 67/584/EEC or 1999/45/EC
      1.2.1. Xi Irritant
      1.2.2. Xn Harmful
      1.2.3. R36/37/38 Irritating to eyes, respiratory system and skin
      1.2.4. R68 Possible risk of irreversible effects
2. Methods of Evaluation
   2.1. In accordance with Article 9 (2.) of Regulation (EC) No. 1272/2008
   2.2. In accordance with Article 8 (3. B) of Regulation (EC) No. 1272/2008
   2.3. In accordance with Annex 1 (1.1.1) of Regulation (EC) No. 1272/2008
   2.4. In accordance with Annex XI (1.2) of Regulation (EC) No. 1907/2006
3. Training Advice
   3.1. Handle this product using standard precautionary laboratory practices, with effective engineering conditions and while wearing the proper protective equipment described in this safety data sheet
   3.2. Only use this product for research purposes and never as a diagnostic tool

Date Revised: 19, June 2019
Revision Number: D
1. Added CSK-0130-1
2. Added CSK-0130-S

END OF SDS