Section 1: Information

1. Product Identification
   1.1. Name: Calcein AM
   1.2. C.A.S. Number: 148504-34-1
   1.3. Catalog Number:
      1.3.1. ViaStain™ Calcein AM/PI Cell Vitality and Viability Kit, Cat. No.: CSK-0118,200 µL
      1.3.2. ViaStain™Calcein AM/PI Cell Vitality and Viability Kit, Cat. No.: CSK-0118-S,10 µL
      1.3.3. ViaStain™ Calcein AM, Cat. No.: CS1-0119, 200 µL
      1.3.4. ViaStain™ Calcein AM, Cat. No.: CS1-0119-S, 10 µL
      1.3.5. ViaStain™ Calcein AM/PI/Hoechst Cell Viability kit, Cat. No.: CSK-V0001-1,200 µL
      1.3.6. ViaStain™ Calcein AM/PI/Hoechst Cell Viability kit, Cat. No.: CSK-V0001-S,10 µL
      1.3.1. ViaStain™ Calcein AM/Hoechst/PI Viability kit, Cat. No.: CSK-V0006-S, 10 µL
      1.3.2. ViaStain™ Calcein AM/Hoechst/PI Viability kit, Cat. No.: CSK-V0006-1, 50 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. Calcein AM should only be used as a dye reagent for research purposes only
   2.2. Calcein AM is not intended to be used as a human or animal diagnostic or therapeutic reagent
   2.3. Do not use Calcein AM for any other uses

Section 2: Hazard Identification

1. Hazard Classification
   - 1.1. H227 Combustible liquid — Category: 4
   - 1.2. H315 Skin corrosion/irritation — Category: 2
   - 1.3. H319 Serious eye damage/eye irritation — Category: 2
   - 1.4. H335 Specific target organ toxicity (single exposure) — Category: 3

   For the full text of H-Statements please reference Section 16
   - 1.5. Hazard symbols — Xi - Irritant
   - 1.6. R36/37/38 — Xi – Irritant

   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. Category 2 — Skin corrosion/Irritation
     - 2.2.2. Category 2A — Serious eye damage/eye Irritation
     - 2.2.3. Category 3 — Specific target organ toxicity (single exposure)
   - 2.3. Precautionary Statements
     - 2.3.1. P210 — Keep away from heat/sparks/open flames/hot surfaces
     - 2.3.2. P280 — Wear protective gloves/eye protection/face protection
     - 2.3.3. P321 — Specific treatment
     - 2.3.4. P370 + P378 — In the event of a fire: use dry sand, dry chemical, or alcohol resistant foam to extinguish
     - 2.3.5. P403 + P235 — Store in a well-ventilated place and keep cool
     - 2.3.6. P501 — Dispose of contents/container to an approved waste disposal plant
   - 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. Dimethyl sulfoxide is readily absorbed through the skin and may carry such materials into the body
     - 2.6.2. Hazardous Materials Identification System Classification
       - Health Hazard: 1
       - Chronic Health Hazard: *
       - Flammability: 2
       - Physical Hazard: 0
     - 2.6.3. National Fire Protection Association Rating

Health Hazard:	0
Fire:	2
Reactivity Hazard:	0
Instability:	0

Section 3: Composition and Information on Ingredients

1. Substance: Calcein AM
   1.1. Hazardous Component: Calcein AM
   1.2. Synonyms
      1.2.1. CAM
      1.2.2. CAL-AM
      1.2.3. 3',6'-Di(O-acetyl-2',7'-bis[N,N-bis(carboxymethyl)-aminomethyl]fluorescein tetraaceetoxymethyl ester
   1.3. Hazardous component molecular formula: $C_{46}H_{46}N_2O_{23}$
   1.4. Hazardous component molecular weight: 994.86 g/mol
2. Substance: Dimethyl sulfoxide
   2.1. Hazardous Component: Dimethyl sulfoxide
   2.2. Synonyms
      2.2.1. DMSO
   2.3. Hazardous component molecular formula: C_2H_6OS
   2.4. Hazardous component molecular weight: 78.13 g/mol

Common Name	Classification	CAS Number/IUPAC Name	EC-Number	M-Factor	Percentage
DMSO	H227: 4	67-68-5	200-664-3	N/A	90 % -99.9 %
Calcein AM	H315: 2 H318: 2 H335: 3	148504-34-1	Not available	N/A	0.1 % -10 %

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. See general first aid measures below
   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 if person is not breathing and provide artificial respiration
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 if irritation persists
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 if irritation persists
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 immediately

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 spray
2. Not Suitable Extinguishing Media
   2.1. No information available
3. Specific Hazards Arising from the Chemical
   3.1. Carbon oxides, Sulphur oxides, Nitrogen 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. Use water spray to cool unopened containers

Section 6: Accidental Release Measures

1. Personal Precautions
   1.1. Use proper personal protective equipment

1.2. Avoid breathing vapors, mists, or gases
1.3. Remove all sources of ignition
1.4. Vapors can accumulate to explosive concentrations in low areas
1.5. See Section 8

2. Protective Equipment
   2.1. Wear standard laboratory proper protective equipment
   2.2. See Section 8
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. Prevent further leakage or spillage if safe to do so
   6.2. 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. Keep in suitable closed container for disposal
      7.2.2. See Section 13 for disposal instructions
   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
      7.5.2. Take precautionary measures against static discharges
   7.6. Cleaning Techniques
      7.6.1. Can collect with wet brush and place in a suitable, closed container for disposal according to local regulations (see Section 13)
      7.6.2. Contain spillage
      7.6.3. Soak up with inert absorbent material
      7.6.4. Keep in a suitable closed container
      7.6.5. For disposal see Section 13
   7.7. Vacuuming Techniques
      7.7.1. Can collect using an electrically protected vacuum cleaner into a suitable, closed container for disposal according to local regulations (see Section 13)

7.8. Special Equipment
    7.8.1. No information available

Section 7: Handling and Storage

1. Safe Handling
    1.1. Avoid inhalation of vapors or mists
    1.2. Avoid direct contact with substance
    1.3. Keep away from sources of ignition – no smoking
    1.4. Take measures to prevent the buildup of electrostatic charge
2. Incompatible Substances
    2.1. Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, and strong reducing agents
3. Operations and Conditions to Avoid
    3.1. Any heat or fire sources
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. Keep container tightly closed in a dry and well-ventilated place
    5.2. Store under inert gas: hygroscopic
    5.3. Store at 4 °C
    5.4. Storage class (TRGS 510): Combustible liquids
    5.5. Conditions to avoid
        5.5.1. Heat, flames, and combustible materials
    5.6. Environmental Effects to avoid
        5.6.1. 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. Have appropriate showers, eyewash stations, and ventilation systems installed and up to code

Section 8: Exposure Controls and Personal Protection

1. National Exposure Limits
    1.1. Substance:Dimethyl sulfoxide
        1.1.1. CAS no. 67-68-5

Country	TWA (8-hour weighted average)		Short -Term Limits/Excursion Limits (STEL)		Biological Limit Value
	ppm	mg/m^3	ppm	mg/m^3	
Austria	-	160 mg/m^3	-	-	-
Belgium	-	-	-	-	-
Bulgaria	-	-	-	-	-
Croatia	-	-	-	-	-
Cyprus	-	-	-	-	-
Czech Republic	-	-	-	-	-
Denmark	-	160 mg/m^3	-	320 mg/m^3	-
Estonia	-	-	-	-	-
Finland	-	-	-	-	-
France	-	-	-	-	-
Germany	-	160 mg/m^3	-	320 mg/m^3	-
Greece	-	-	-	-	-
Hungary	-	-	-	-	-
Ireland	-	-	-	-	-
Italy	-	-	-	-	-
Latvia	-	-	-	-	-
Lithuania	-	-	-	-	-
Luxembourg	-	-	-	-	-
Malta	-	-	-	-	-
Netherlands	-	-	-	-	-
Poland	-	-	-	-	-
Portugal	-	-	-	-	-
Romania	-	-	-	-	-
Slovakia	-	-	-	-	-
Slovenia	-	-	-	-	-
Spain	-	-	-	-	-
Sweden	-	160 mg/m^3	-	500 mg/m^3	-
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
   2.3. Have appropriate showers, eye wash stations, and ventilation systems installed and up to code
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. Gloves must be inspected prior to use

3.3.2. Nitrile gloves are not recommended due to some having a 5 minutes breakthrough time

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 and dry hands after every use

3.4. Respiratory Protection

3.4.1. No information available

3.5. Thermal Hazards

3.5.1. Avoid heat

4. Environmental Exposure Controls

4.1. Do not let product enter drains

Section 9: Physical and Chemical Properties

Property	Data
Physical State	Liquid
Color	Clear
Odor	Sulphurous
Odor Threshold	No data available
Freezing Point	No data available
Melting Point	16-19 °C (61-66 °F)
Boiling point or Initial Boiling Point/Range	189 °C (372 °F)
Flammability	No data available
Lower and Upper Explosion Limit/Flammability Limit	Upper Explosion Limit: 42 % Lower Explosion Limit: 3.5 %
Flash Point	87 °C (189 °F) – Closed cup- ASTM D 93
Auto-Ignition Temperature	300-302 °C (572-576 °F)
Explosive Properties	> 190 °C (>374 °F)
Decomposition Temperature	Upper Explosion Limit: 42 % Lower Explosion Limit: 3.5 %
Oxidizing Properties	No information available
pH	Not applicable
Viscosity	No information available
Solubility	Water Solubility – Completely miscible Alcohol – Soluble

	Diethyl ether - Soluble
Partition Coefficient n-octanol/water (Log value)	log Pow: -1.35
Vapor Pressure	0.55 h Pa (0.41 mmHg) at 20 °C (68 °F) 4 h Pa (3 mmHg) at 50 °C (122 °F)
Density and/or Relative Density	1.1 g/mL
Relative Vapor Density	2.70 - (Air = 1.0)
Particle Characteristics	Not applicable
Evaporation Rate	No information available
Surface Tension	43.5 mN/m at 20 °C (68 °F)

Section 10: Stability and Reactivity

1. Reactivity
   1.1. No information available
2. Chemical Stability
   2.1. Stable under recommended storage conditions, but may form explosive peroxides
3. Possibility of Hazardous Reactions
   3.1. None under normal processing
4. Conditions to avoid
   4.1. Heat, flames, sparks, and exposure to air over prolonged periods of time
5. Incompatible Materials
   5.1. Acid chlorides, Phosphorus halides, strong acids, strong oxidizing agents, and strong reducing agents
6. Hazardous Decomposition Products
   6.1. Formed under fire: See Section 5
   6.2. Hazardous polymerization does not occur
   6.3. Other decomposition products: No information available

Section 11: Toxicological Information

1. Acute Toxicity: Dimethyl sulfoxide
   1.1. Oral LD50 - Rat – 14,500 mg/kg
   1.2. Inhalation LC50 - Rat – 4h – 40250 ppm
   1.3. Dermal LD50 - Rabbit - >5,000 mg/kg
2. Skin Corrosion/Irritation
   2.1. Mild skin irritation
   2.2. Components of the product may be absorbed through the skin
3. Serious Eye Damage/Irritation
   3.1. Eye disease – based on human evidence
4. Respiratory or Skin Sensitization
   4.1. No information available
5. Repeated Dose Toxicity

5.1. No information available
6. Germ Cell Mutagenicity
   6.1. Mouse
      6.1.1. Lymphocyte - Cytogenic analysis
      6.1.2. Lymphocyte - Mutation in mammalian somatic cells
      6.1.3. DNA damage
   6.2. Rat
      6.2.1. Lymphocyte - Cytogenic analysis
7. Carcinogenicity
   7.1. Rat
      7.1.1. Oral – Tumorigenic: Equivocal tumorigenic agent by RTECS criteria
      7.1.2. Skin, and Appendages:
      7.1.3. Other: Tumors
   7.2. Mouse
      7.2.1. Oral – Tumorigenic: Equivocal tumorigenic agent by RTECS criteria
      7.2.2. Leukemia, Skin, and Appendages:
      7.2.3. Other: Tumors
   7.3. IARC
      7.3.1. 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. Rat – Effects on Fertility
      8.1.1. Intraperitoneal
         8.1.1.1. Abortion
         8.1.1.2. Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants
      8.1.2. Subcutaneous
         8.1.2.1. Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants
         8.1.2.2. Liter size (e.g., number of fetuses per litter; measured before birth)
   8.2. Mouse – Effects on Fertility
      8.2.1. Oral
         8.2.1.1. Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea)
   8.3. Mouse – Effects on Embryo or Fetus
      8.3.1. Oral
      8.3.1.1.Fetotoxicity (except death, e.g., stunted fetus)
      8.3.2. Intraperitoneal
      8.3.2.1.Fetotoxicity (except death, e.g., stunted fetus)
      8.3.3. Specific Developmental Abnormalities
      8.3.3.1.Musculoskeletal system
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. PV6210000 – Dimethyl sulfoxide
    16.2.Exposure to large amounts can cause: redness of skin, itching, burning, sedation, headache, nausea, and dizziness

Section 12: Ecological Information

1. Ecotoxicity:May cause long-lasting, harmful effects to aquatic life
    1.1. Fish
        1.1.1. LC50Pimephales promelas (fathead minnow)34,000 mg/l – 96 h
        1.1.2. LC50 Oncorhynchus mykiss (rainbow trout)35,000 mg/l – 96 h
    1.2. Daphnia and Other Aquatic Invertebrates
        1.2.1. EC50 Daphnia magna (water flea)24,600 mg/l – 48 h
        (OECD Test Guideline 202)
    1.3. Algae
        1.3.1. EC50 Pseudokirchneriella subcapitata (green algae)17,000 mg/l – 72 h
        (OECD Test Guideline 201)
    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. No information
1.1.2. Reference Section 13
2. Persistence and Degradability
2.1. Not readily biodegradable31 % according to OECD Test Guideline 301D
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. Not available

2. Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)
   2.1. Not available
3. European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)
   3.1. Not 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. International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors: Neither banned nor restricted
   1.2. REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII): Neither banned nor restricted
   1.3. Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals:Neither banned nor restricted
   1.4. REACH – List of substances subject to authorization (Annex XIV): Neither Banned nor restricted
   1.5. REACH – Candidate List of Substances of Very High Concern for Authorization (Article 59): This product does not contain substances of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 57)
2. Health Regulations/Legislations
   2.1. No information available
3. Environmental Regulations/Legislations
   3.1. Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer: Neither banned nor restricted
   3.2. Regulation (EC) No. 850/2004 on persistent organic pollutants: Neither banned nor restricted
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. H227 Combustible liquid
      1.1.2. H319 Causes serious eye irritation
      1.1.3. H315 Causes skin irritation
      1.1.4. H335 May cause respiratory irritation
   1.2. R-phrases according to EU Directives 67/584/EEC or 1999/45/EC
      1.2.1. Xi Irritant
      1.2.2. R36/37/38 Irritating to eyes, respiratory system and skin
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: 29, January 2019
Revision Number: C
1. Updated UK address information.

END OF SDS