SAFETY DATA SHEET

APS

Version	Revision Date:	SDS Number:	Date of last issue: 02/23/2017
2.0	07/01/2021	600000000004	Date of first issue: 10/27/2016

SECTION 1. IDENTIFICATION

Trade name	:	APS
Other means of identification	:	No data available
CAS-No.	:	7727-54-0

Manufacturer or supplier's details

Company name of supplier	:	United Initiators, Inc.
Address	:	555 Garden Street Elyria OH 44035 USA United Initiators Canada Ltd. 2147 PG Pulp Mill Road Prince George, BC-V2N 2S6 CANADA
Telephone	:	+1-440-323-3112
Telefax	:	+1-440-323-2659
Emergency telephone	:	CHEMTREC US (24h): +1-800-424-9300 CHEMTREC WORLD (24h): +1-703-527-3887 CANUTEC (24h): 1-613-996-6666
For Transportation Incidents	:	TERRAPURE EMERGENCY RESPONSE SERVICES (24h): 1-800-567-7455
E-mail address of person responsible for the SDS	:	cs-initiators.nafta@united-in.com

Recommended use of the chemical and restrictions on use

Recommended use	:	Oxidizing agents polymerization initiators

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Oxidizing solids	:	Category 3
Acute toxicity (Oral)	:	Category 4
Skin irritation	:	Category 2
Eye irritation	:	Category 2A

Respiratory sensitization	:	Category 1
Skin sensitization	:	Category 1
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system)

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements :

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.

Precautionary Statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284 Wear respiratory protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use water spray to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture	:	Substance
Chemical nature	:	Persulphate Solid
Substance name	:	Ammonium Persulfate
CAS-No.	:	7727-54-0
Synonyms	:	No data available

Components

Chemical name	CAS-No.	Concentration (% w/w)
Ammonium persulphate	7727-54-0	<= 100 *

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Do not leave the victim unattended. Symptoms of poisoning may appear several hours later. Call a physician immediately.
If inhaled	:	Call a physician or poison control center immediately. If unconscious, place in recovery position and seek medical advice.

		Keep respiratory tract clear. If breathed in, move person into fresh air.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before re-use. If on skin, rinse well with water. If on clothes, remove clothes. If symptoms persist, call a physician.
In case of eye contact	:	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Call a physician immediately. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray jet Foam
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite. Cool closed containers exposed to fire with water spray.
Specific extinguishing methods	:	Do not use a solid water stream as it may scatter and spread fire.

		Remove undamaged containers from fire area if it is safe to do so. Use water spray to cool unopened containers. Suppress (knock down) gases/vapors/mists with a water spray jet.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Remove all sources of ignition. Follow safe handling advice and personal protective equipment recommendations. Never return spills in original containers for re-use. Treat recovered material as described in the section "Disposal considerations".
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contact with incompatible substances can cause decomposition at or below SADT. Clear spills immediately. Suppress (knock down) gases/vapors/mists with a water spray jet. To clean the floor and all objects contaminated by this material, use plenty of water. Soak up with inert absorbent material. Isolate waste and do not reuse. Non-sparking tools should be used. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Advice on protection against fire and explosion	:	Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from combustible material.
Advice on safe handling	:	Do not swallow. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Take precautionary measures against static discharges. Never return any product to the container from which it was originally removed. Provide sufficient air exchange and/or exhaust in work rooms. Avoid confinement. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Smoking, eating and drinking should be prohibited in the application area. Wash thoroughly after handling. For personal protection see section 8. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. Protect from contamination. Protect from moisture.
Conditions for safe storage	:	Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Electrical installations / working materials must comply with the technological safety standards. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Keep in a dry place. Store in accordance with the particular national regulations.
Materials to avoid	:	Keep away from strong acids, bases, heavy metal salts and other reducing substances.
Recommended storage temperature	:	< 30 °C
Further information on storage stability	:	No decomposition if stored normally.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ammonium persulphate	7727-54-0	TWA	0.1 mg/m3	CA AB OEL
		TWA	0.1 mg/m3 (Persulphate)	CA BC OEL
		TWA	0.1 mg/m3 (Persulphate)	ACGIH

Engineering measures : Minimize workplace exposure concentrations.

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : Filter type P

Hand protection

Material : butyl-rubber
Break through time : 480 min
Glove thickness : 0.5 mm

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.4 mm

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Tightly fitting safety goggles
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Hygiene measures : Keep away from food and drink.
When using do not eat or drink.

When using do not smoke.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	crystalline
Color	:	white
Odor	:	not significant
Odor Threshold	:	No data available
pH	:	4 Concentration: ca. 10 g/l
Melting point/freezing point	:	Decomposition: Decomposes below the melting point.
Initial boiling point and boiling range	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not expected to form explosive dust-air mixtures.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	< 0.001 hPa (25 °C)
Bulk density	:	1,100 kg/m3 (20 °C)
Solubility(ies) Water solubility	:	850 g/l soluble (25 °C)
Partition coefficient: n-octanol/water	:	Not applicable
Self-Accelerating decomposition temperature (SADT)	:	130 °C Method: UN-Test H.4 SADT-Self Accelerating Decomposition Temperature. Lowest

temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Viscosity

Viscosity, dynamic : Not applicable

Viscosity, kinematic : Not applicable

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is classified as oxidizing with the category 3.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Avoid moisture.
Even small amounts of moisture or impurities can noticably reduce the self-accelerating decomposition temperature (SADT).

Conditions to avoid : Contact with incompatible substances can cause decomposition at or below SADT.
Even small amounts of moisture or impurities can noticably reduce the self-accelerating decomposition temperature (SADT).

Incompatible materials : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents

Hazardous decomposition products : Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : LD50 (Rat, male): 742 mg/kg
Method: OECD Test Guideline 401

Components:

Ammonium persulphate:

Acute oral toxicity : LD50 (Rat, male): 742 mg/kg

Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.
Remarks: Based on test data

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Expert judgment

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Expert judgment

Skin corrosion/irritation

Causes skin irritation.

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

Remarks : May cause skin irritation in susceptible persons.

Components:

Ammonium persulphate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks : May cause irreversible eye damage.

Species : Rabbit
Result : Irritating to eyes.
Method : OECD Test Guideline 405

Components:

Ammonium persulphate:

Species : Rabbit
Result : Irritating to eyes.
Method : OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Product:

Remarks	:	Causes sensitization.
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitization by skin contact.
Routes of exposure	:	inhalation (dust/mist/fume)
Result	:	May cause sensitization by inhalation.

Components:

Ammonium persulphate:

Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitization by skin contact.
Routes of exposure	:	inhalation (dust/mist/fume)
Result	:	May cause sensitization by inhalation.

Germ cell mutagenicity

Not classified based on available information.

Components:

Ammonium persulphate:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Result: negative
Genotoxicity in vivo	:	Species: Mouse Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Ammonium persulphate:

Species	:	Mouse

Application Route	:	Skin contact
Exposure time	:	52 weeks
Method	:	OECD Test Guideline 451
Result	:	negative

Reproductive toxicity

Not classified based on available information.

Components:

Ammonium persulphate:

Effects on fertility	:	Species: Rat Application Route: Ingestion General Toxicity Parent: NOAEL: >= 250 mg/kg body weight General Toxicity F1: NOAEL: >= 250 mg/kg body weight Method: OECD Test Guideline 421

STOT-single exposure

May cause respiratory irritation.

Product:

Assessment	:	May cause respiratory irritation.

Components:

Ammonium persulphate:

Assessment	:	May cause respiratory irritation.

STOT-repeated exposure

Not classified based on available information.

Components:

Ammonium persulphate:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

Ammonium persulphate:

Species	:	Rat
NOAEL	:	1,000 mg/kg
LOAEL	:	3,000 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 d
Method	:	OECD Test Guideline 408

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Ammonium persulphate:

Toxicity to fish	:	LC50 (Scophthalmus maximus (turbot)): 107.6 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 120 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Phaeodactylum): 320 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Phaeodactylum): 32 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC10 (Pseudomonas putida): 36 mg/l Exposure time: 18 h

Persistence and degradability

Components:

Ammonium persulphate:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

Components:

Ammonium persulphate:

Partition coefficient: n-octanol/water : Remarks: Not applicable

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of wastes in an approved waste disposal facility.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum. Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 1444
Proper shipping name	:	AMMONIUM PERSULPHATE
Class	:	5.1
Packing group	:	III
Labels	:	5.1

IATA-DGR

UN/ID No.	:	UN 1444
Proper shipping name	:	Ammonium persulphate
Class	:	5.1
Packing group	:	III
Labels	:	Oxidizer
Packing instruction (cargo aircraft)	:	563
Packing instruction (passenger aircraft)	:	559

IMDG-Code

UN number	:	UN 1444
Proper shipping name	:	AMMONIUM PERSULPHATE
Class	:	5.1

Packing group	:	III
Labels	:	5.1
EmS Code	:	F-A, S-Q
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG

UN number	:	UN 1444
Proper shipping name	:	AMMONIUM PERSULPHATE
Class	:	5.1
Packing group	:	III
Labels	:	5.1
ERG Code	:	140
Marine pollutant	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

The ingredients of this product are reported in the following inventories:

TCSI (TW)	:	On the inventory, or in compliance with the inventory
TSCA (US)	:	All substances listed as active on the TSCA inventory
AICS (AU)	:	On the inventory, or in compliance with the inventory
DSL (CA)	:	All components of this product are on the Canadian DSL
ENCS (JP)	:	On the inventory, or in compliance with the inventory
ISHL (JP)	:	On the inventory, or in compliance with the inventory
KECI (KR)	:	On the inventory, or in compliance with the inventory
PICCS (PH)	:	On the inventory, or in compliance with the inventory
IECSC (CN)	:	On the inventory, or in compliance with the inventory
NZIoC (NZ)	:	On the inventory, or in compliance with the inventory

Canadian lists

No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION

Further information

This material safety datasheet only contains information relating to safety and does not replace any product information or product specification.
These safety instructions also apply to empty packaging which may still contain product residues.

Sources of key data used to compile the Material Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Revision Date	:	07/01/2021
Date format	:	mm/dd/yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / Z8

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC -

No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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