SAFETY DATA SHEET

According to OSHA HCS CFR 1910.1200 (USA) and Hazardous Products Regulations/WHMIS 2015 (Canada)

SECTION 1. IDENTIFICATION

Product identifier used on the label:	DL Series - Matrix
Other means of identification:	DL-5 or DL-10
Recommended use(s):	Matrix for the manufacturing of explosives.
Restrictions on use(s):	Do not use for applications other than those recommended.
Name of supplier:	Davey Bickford USA, Inc.
Address of supplier:	428 E Winchester St, Suite 202. Salt Lake City, Utah 84107 USA.
Telephone of supplier:	(801) 562-3045
E-mail address:	dfrancelj@daveybickford.us
Emergency phone number:	(800) 255-3924 (CHEMTEL) (USA - CANADA)

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical:

H224 - Flam. Liq. 1

H272 - Ox. Liq. 3

H319 - Eye Irrit. 2A

H350 - Carc. 1B

Symbol(s):

Signal word: DANGER

Hazard statements

H224—Extremely flammable liquid and vapor
H272—May intensify fire; oxidizer.
H319—Causes serious eye irritation
H350—May cause cancer.

Precautionary statements

P201—Obtain special instructions before use.
P202—Do not handle until all safety precautions have been read and understood.
P210—Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P220—Keep/Store away from clothing/flammable/combustible materials.
P221—Take any precautions to avoid mixing with clothing, combustible materials , combustiles
P233—Keep container tightly closed
P240—Ground/bond container and receiving equipment
P241—Use explosion-proof electrical, lightning ventilating, equipment
P242—Use only non-sparking tools
P243—Take precautionary measures against static discharge
P264—Wash hands, forearms, and exposed areas thoroughly after handling
P280—Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353—If on skin (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower

Precautionary statements (cont)	P305 + P351 + P338—If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P313—If exposed or concerned: Get medical advice/attention. P337+P313—If eye irritation persists: Get medical advice/attention. P370+P378—In case of fire: Use dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2) for extinction. P403 + P235—Store in a well-ventilated place. Keep cool. P405—Store locked up. P501—Dispose of contents/container according to local, regional, national, and international regulations.
Other Hazards:	H401—Toxic to aquatic life

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	Ammonium Nitrate	Fuels, diesel, gasoil—unspecified	Petroleum	Urea
Common name/synonyms:	Ammonium Nitrate	Fuels, diesel, gasoil—unspecified	Petroleum	Urea
Concentration:	< 80%	< 8%	< 8%	<11%
CAS Number:	6484-52-2	68334-30-5	8042-47-5	57-13-6

SECTION 4. FIRST-AID MEASURES

Description of first aid measures:	
General Information:	No special measures required.
In case of inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
In case of skin contact::	Wash skin with plenty of soap and water. Call a POISON CENTER or doctor/physician if you feel unwell.
In case of eye contact::	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician, if eye irritation persists.
In case of ingestion:	Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTER or doctor/ physician.
Most important symptoms/effects, acute and delayed:	Ingestion of ammonium nitrate may cause methemoglobinemia. Cyanosis and dyspnea develop with moderate methemoglobinemia. In severe poisonings, unconsciousness, dizziness, fatigue, shortness of breath, and hypotension may develop. Nitrates can be irritating to the
Indication of immediate medical attention and special treatment needed, if necessary:	Inhalation of thermal degradation products may produce delayed effects (pulmonary edema). Observe for at least 48 h.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.
Unsuitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smothering this product could lead to decomposition and explosion. This product is more sensitive to detonation if contaminated with organic or oxidizable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible.
Specific hazards arising from the chemical:	Fire Hazard: Not itself combustible but assists fire in burning materials (oxidizing). Rate of burning: will accelerate burning. After fire has started, this product will continue to burn in the absence of air. Explosion Hazard: May cause fire or explosion; strong oxidizer. Reactivity: 'Oxidizing': substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances. Will continue to burn in the absence of air.
Special protective equipment and precautions for fire-fighters:	Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Firefighting Instructions: DO NOT ATTEMPT TO FIGHT FIRE. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors. Protection During Firefighting: When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-containing breathing apparatus (SCBA) and full turnout gear.
Additional information:	In case of fire: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all direc-

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:	As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet). Keep unauthorized personnel away. Ventilate closed spaces before entering. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Keep sources of ignition, heat and flames away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do
Methods and materials for containment and cleanup:	Avoid release to the environment. Small spill: Use a non-combustible material like vermiculite or sand to soak up the product and place into a container for later disposal. Large spill: Dike far ahead of liquid spill for later disposal. Following product recovery,

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:	Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Wash hands thoroughly after handling. Do no eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
Conditions for safe storage, including any incompatibilities:	Store away from heat/sparks/open flames/hot surfaces. Store in a dry, cool and well-ventilated place. Keep /store away from combustible/flammable materials and incompatible materials such as corrosives, strong acids, strong bases and alkalis.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA permissible exposure limit (PEL):	CAS 68334-30-5	No limit
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV):	CAS 68334-30-5	TWA: 100 mg/m^3
National Institute for Occupational Safety and Health (NIOSH):	CAS 68334-30-5	No limit
Occupational exposure limits for Alberta Canada workplaces:	CAS 68334-30-5	TWA: 100 mg/m^3
Occupational exposure limits for British Columbia Canada work-places:	CAS 68334-30-5	TWA: 100 mg/m^3 [skin]
Occupational exposure limits for Manitoba Canada workplaces:	CAS 68334-30-5	TWA: 100 mg/m^3
Occupational exposure limits for Ontario Canada workplaces:	CAS 68334-30-5	TWA: 100 mg/m^3 [Inhalable aero-sol and vapor
Appropriate engineering controls:	Use only outdoors or in a well-ventilated area.	
Individual protection measures		
Eye/face protection:	Use safety glasses with lateral protection.	
Hand protection:	Wear impermeable gloves.	
Respiratory protection:	In case of insufficient ventilation, use a respirator with a filter for organic vapors / gases.	

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Odor:	Not available.
Odor threshold:	Not available.
pH:	Not applicable
Melting point/freezing point:	Not available for the mixture.
Initial boiling point and boiling range:	Not available for the mixture.
Flash point:	80°C / 176° F
Evaporation rate:	Not available for the mixture.
Flammability:	Non flammable.
Upper/lower flammability or explosive limits:	Not applicable.
Vapor pressure:	Not available for the mixture.
Vapor density:	Not available for the mixture.
Relative density:	1.3 – 1.4 g/cm^3.
Solubility(ies):	Insoluble in water.
Partition coefficient: n-octanol/water:	Not available.
Auto-ignition temperature:	Not available for the mixture.
Decomposition temperature:	Not available for the mixture.
Viscosity:	Not available for the mixture.

SECTION 10. STABILITY AND REACTIVITY

Reactivity:	Avoid contact with reducing/combustible agents.
Chemical stability:	Stable under recommended handling and storage conditions. Does not polymerize.
Possibility of hazardous reactions:	May explode when subjected to extreme heat, specially under confinement.
Conditions to avoid:	Keep away from heat/sparks/open flames/hot surfaces.
Incompatible materials:	Acids, oxidizers, peroxides, chlorates, copper and their alloys, zinc.
Hazardous decomposition products:	Carbon monoxide, carbon dioxide, nitrogen oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely routes of exposure:	Dermal
Symptoms related to the physical, chemical, and toxicological characteristics:	May cause skin irritation. Suspected of causing cancer.
Information on toxicological effects from short and long term exposure:	
Acute toxicity:	No studies available for the product itself.
Oral (LD50):	2950 mg/kg - Ammonium Nitrate
Dermal (LD50):	> 5000 mg/kg - Ammonium Nitrate
Inhalation (LC50):	> 88 mg/l - Ammonium Nitrate
Skin corrosion/irritation:	May contain diesel fuel CAS 68334-30-5: Causes skin irritation.
Serious eye damage/irritation:	No studies available for the product itself. Based on the classification of the ingredients, the product is not classified in this hazard class.
Respiratory or skin sensitization:	No studies available for the product itself. Based on the classification of the ingredients, the product is not classified in this hazard class.
Germ cell mutagenicity/genotoxicity:	No studies available for the product itself. Based on the classification of the ingredients, the product is not classified in this hazard class.
Carcinogenicity:	May contain diesel fuel CAS 68334-30-5: Suspected of causing cancer.
Reproductive toxicity:	No studies available for the product itself. Based on the classification of the ingredients, the product is not classified in this hazard class.
Specific target organ toxicity (single exposure):	No studies available for the product itself. Based on the classification of the ingredients, the product is not classified in this hazard class.
Specific target organ toxicity (repeated exposure):	Contains fuel diesel CAS 68334-30-5: May cause damage to liver and thymus through prolonged or repeated exposure.
Aspiration hazard:	Not applicable.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Harmful to aquatic life with long lasting effects. Aquatic Chronic Toxicity, Cat. 3.
Persistence and degradability:	Ammonium nitrate will be taken up by bacteria. Nitrate is more persistent in water than / the/ ammonium ion; nitrate degradation is fastest in anaerobic conditions.
Bioaccumulative potential:	Ammonium nitrate potential for bioconcentration is low.
Mobility in soil:	The ammonium ions can fix to the clay particles and leach slowly. The nitrate ion is easily leachable. Fuel is expected to have low to no mobility in soil
Other adverse effects:	Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

Description of waste residues:	It is responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine proper waste identification and disposal method in compliance with applicable regulations (eg. Resource Conservation and Recovery Act (RCRC) 40 CFR 261).
Information on their safe handling and methods of disposal:	Do not dispose with household waste. Oxidiser. Keep away from combustible/flammable materials and incompatible materials such as corrosives, strong acids, strong bases and alkalis.

SECTION 14. TRANSPORT INFORMATION

UN number:	3375
UN proper shipping name:	Ammonium Nitrate Emulsion
Transport hazard class(es):	5.1
Packing group:	II
Environmental hazards (marine pollutant):	No
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):	Not Applicable
Special precautions:	-

SECTION 15. REGULATORY INFORMATION

Safety, health, and environmental regulations specific for the product:	USA Chemical Facility Anti-Terrorism Standards (CFATS) Appendix A to Part 27. – DHS Chemicals of Interest Ammonium nitrate SARA Regulations Sections 313 and 40 CFR 372 Ammonium nitrate: This substance is listed under Section 313 of the Emergency Planning and Community Right-to- Know Act (EPCRA) (referred to as the Toxics Release Inventory (TRI). TSCA Inventory All ingredients are listed. USA STATE REGULATIONS AMMONIUM NITRATE (CAS 6484-52-2) Massachusetts Right-to-Know Massachusetts Substance List for Right-to-Know Law (Apr 93). General Law C.111F, Chapter 30A (28 Jun 84); 105 CMR 670.000, Appendix A Listed Name(s): Ammonium nitrate. First Listed: Apr 1993. New Jersey Right-to-Know New Jersey Department of Health Hazard Right-to-Know Program Hazardous Substance List, December 1989. Special Health Hazard Code(s): R3 (Reactive, Third Degree) Common Name(s): AMMONIUM NITRATE; NITRIC ACID, AMMONIUM SALT Pennsylvania Right-to-Know Pennsylvania Department of Labor and Industry Hazardous Substance List 1989. Listed Name(s): NITRIC ACID AMMONIUM SALT Special Health Hazard Code(s): (E) Environmental Hazard State of Rhode Island Right-to-Know This substance is listed on the Rhode Island Hazardous Substance List. DIESEL FUEL OIL (CAS 68334-30-5) Pennsylvania Right-to-Know Pennsylvania Department of Labor and Industry Hazardous Substance List 1989. Listed Name(s): DIESEL FUEL OIL State of Rhode Island Right-to-Know This substance is listed on the Rhode Island Hazardous Substance List. CANADA WHMIS 2015 Classification Ox. Liq., Cat. 2. Carc., Cat. 2. Domestic Substances List All ingredients are specified on the DSL.

SECTION 16. OTHER INFORMATION

Abbreviations/Acronyms:	IARC: International Agency for Research on Cancer. NTP: National Toxicology Program. OSHA: Occupational Safety and Health Administration. STEL: Short term exposure limit.
References:	European Chemicals Agency – C&L Inventory. U.S. National Library of Medicine HSDB – Hazardous Substances Database.
Date of Preparation:	31-03-2017
Supercedes:	-
Indication of changes:	-

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Hazardous Products Regulations/WHMIS 2015 (Canada).

End of safety data sheet