



# Material Safety Data Sheet

UAN Urea Ammonium Nitrate Solution

## Section 1. Chemical product and company identification

**Trade name** : UAN Urea Ammonium Nitrate Solution  
**Manufacturer** : Yara Canada Inc.  
1130 Sherbrooke St. W., Suite 1050  
Montréal, QC  
CANADA  
H3A 2M8  
  
Tel: (514) 849-9222  
Fax: (514) 849-3362  
  
**Validation date** : 2010-11-04.  
**Print date** : 2010-11-04.  
**Responsible name** : Christian Yelle.  
  
**In case of emergency** : Business Hours 8:30 AM to 4:30 PM  
Christian Yelle  
Jean-Luc Hébert  
Yara Canada Inc.  
Contrecoeur, QC  
(450) 587-2047  
  
24 Hour Emergency Service:  
Canutec  
613-996-6666

## Section 2. Hazards identification

**Physical state** : Liquid. [Colorless. Light brown.]  
**Emergency overview** : CAUTION!  
MAY BE HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  
Do not ingest. Wash thoroughly after handling.  
  
**Potential acute health effects**  
**Eyes** : Slightly irritating to the eyes.  
**Skin** : Slightly irritating to the skin.  
**Inhalation** : Slightly irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.  
**Ingestion** : Harmful if swallowed.  
  
**Potential chronic health effects**  
**Chronic effects** : No known significant effects or critical hazards.  
**Carcinogenic effects** : No known significant effects or critical hazards.  
**Mutagenic effects** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.  
  
**Over-exposure signs/symptoms**  
**Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
**Ingestion** : No specific data.

## UAN Urea Ammonium Nitrate Solution

- Skin** : Adverse symptoms may include the following:  
irritation  
redness
- Eyes** : Adverse symptoms may include the following:  
irritation  
watering  
redness

See toxicological information (Section 11)

## Section 3. Composition/information on ingredients

| <u>Name</u>      | <u>CAS number</u> | <u>% by weight</u> |
|------------------|-------------------|--------------------|
| Ammonium Nitrate | 6484-52-2         | 39 - 45            |
| Urea             | 57-13-6           | 31 - 35            |

### Additional information

Nitrogen (N) 28% 30% 32%

| Contains: (% by weight) |    |    |    | CAS number |
|-------------------------|----|----|----|------------|
| Urea                    | 39 | 42 | 45 | 57-13-6    |
| Ammonium Nitrate        | 31 | 33 | 35 | 6484-52-2  |
| Water                   | 30 | 25 | 20 | 7732-18-5  |

## Section 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- 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 clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## Section 5. Fire-fighting measures

**Flammability of the product** : May be combustible at high temperature.

### Extinguishing media

**Suitable** : Use an extinguishing agent suitable for the surrounding fire.

**Products of combustion** : These products are  
carbon dioxide  
carbon monoxide  
nitrogen oxides

**Explosion hazards in the presence of various substances** : DO NOT allow any pump handling the product to run dry or over-heat e.g. due to blockage or closed valve in the associated lines, resulting in pumping against a dead-end. Under such conditions if over-heating occurs this may cause vaporisation and possible decomposition of the product. This can create pressure build-up in the pump and, if unchecked, lead to an explosion. Ensure that the pump is used correctly according to the manufacturers instructions at all times when pumping the product.

**Fire-fighting media and instructions** : Use water only in flooding quantities to fight the fire.

## UAN Urea Ammonium Nitrate Solution

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Remarks** : DO NOT allow any pump handling the product to run dry or over-heat e.g. due to blockage or closed valve in the associated lines, resulting in pumping against a dead-end. Under such conditions if over-heating occurs this may cause vaporisation and possible decomposition of the product. This can create pressure build-up in the pump and, if unchecked, lead to an explosion. Ensure that the pump is used correctly according to the manufacturers instructions at all times when pumping the product.
- Hazardous thermal decomposition products** : These products are: carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub> etc.), ammonia (NH<sub>3</sub>).

## Section 6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Material free from contamination can be used for its original purpose. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## Section 7. Handling and storage

- Handling** : Avoid contact with eyes, skin and clothing. Avoid breathing vapors, spray or mists.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep away from heat and direct sunlight.

## Section 8. Exposure controls/personal protection

- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure eyewash facilities are located close to the working environment.
- Personal protection**
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: splash goggles
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

## UAN Urea Ammonium Nitrate Solution

**Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. >8 hours (breakthrough time): butyl rubber , natural rubber (latex) , nitrile rubber .

**Personal protective equipment (Pictograms)** :



| Occupational exposure limits |                | TWA (8 hours) |                   |       | STEL (15 mins) |                   |       | Ceiling |                   |       |
|------------------------------|----------------|---------------|-------------------|-------|----------------|-------------------|-------|---------|-------------------|-------|
| Ingredient                   | List name      | ppm           | mg/m <sup>3</sup> | Other | ppm            | mg/m <sup>3</sup> | Other | ppm     | mg/m <sup>3</sup> | Other |
| Urea                         | US AIHA 1/2009 | -             | 10                | -     | -              | -                 | -     | -       | -                 | -     |

Consult local authorities for acceptable exposure limits.

## Section 9. Physical and chemical properties

**Physical state** : Liquid. [Colorless. Light brown.]  
**Odor** : Odorless. , Ammoniacal. [Slight]  
**pH** : 7 to 7,2 [Conc. (% w/w): 100%]  
**Boiling/condensation point** : 121°C (249,8°F)  
**Melting/freezing point** : 0°C (32°F)  
**Specific gravity** : 1,28 to 1,32  
**Density (lbs/gal)** : 10.86  
**Vapor pressure** : 0,7 kPa (5,25 mm Hg) [20°C]  
**VOC** : 33 % (w/w)  
**Viscosity** : Dynamic: 5 mPa·s (5 cP)

## Section 10. Stability and reactivity

**Stability and reactivity** : Stable under recommended storage and handling conditions (see section 7).  
**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
**Incompatibility with various substances** : Reactive or incompatible with the following materials: oxidizing materials, reducing materials, acids and alkalis.  
**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.  
**Hazardous thermal decomposition products** : These products are: carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub> etc.), ammonia (NH<sub>3</sub>).  
**Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## Section 11. Toxicological information

### Potential acute health effects

**Inhalation** : Slightly irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.  
**Ingestion** : Harmful if swallowed.  
**Skin contact** : Slightly irritating to the skin.  
**Eye contact** : Slightly irritating to the eyes.

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|--------|---------|------|----------|
|-------------------------|--------|---------|------|----------|

**UAN Urea Ammonium Nitrate Solution**

|                  |                       |       |            |   |
|------------------|-----------------------|-------|------------|---|
| Ammonium Nitrate | LD50 Oral             | Rat   | 2217 mg/kg | - |
|                  | TDL <sub>o</sub> Oral | Rat   | 10 mg/kg   | - |
| Urea             | LD50 Oral             | Mouse | 11 g/kg    | - |
|                  | LD50 Oral             | Rat   | 8471 mg/kg | - |

**Section 12. Ecological information**

**Environmental effects** : Used in excess quantities the product can cause eutrophication in water.

**Aquatic ecotoxicity**

| Product/ingredient name | Test         | Result                          | Species  | Exposure |
|-------------------------|--------------|---------------------------------|--|----------|
| Urea                    | - Acute EC50 | 3910000 ug/L Fresh water        | Daphnia - Water flea - Daphnia magna - Neonate                 | 48 hours |
|                         | - Acute LC50 | >1000 mg/L Marine water         | Crustaceans - Amphipod - Chaetogammarus marinus - Young - 5 mm | 48 hours |
|                         | - Acute LC50 | 16700 to 19600 ug/L Fresh water | Fish - Rohu - Labeo rohita - Egg                               | 96 hours |

**Conclusion/Summary** : The product is not expected to harm the environment when used properly according to directions.

**Biodegradability**

**Conclusion/Summary** : Most inorganic compounds are not biodegradable. The product does not show any bioaccumulation phenomena.

**Section 13. Disposal considerations**

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Consult your local or regional authorities.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

**Section 14. Transport information**

| Regulatory information       | UN number      | Proper shipping name | Class | Packing group | Label | Additional information |
|------------------------------|----------------|----------------------|-------|---------------|-------|------------------------|
| <b>DOT Classification</b>    | Not regulated. | -                    | -     | -             |       | -                      |
| <b>TDG Classification</b>    | Not regulated. | -                    | -     | -             |       | -                      |
| <b>Mexico Classification</b> | Not regulated. | -                    | -     | -             |       | -                      |

## Section 15. Regulatory information

- WHMIS (Canada)** : Not controlled under WHMIS (Canada).
- Canadian lists** : **CEPA Toxic substances:** None of the components are listed.  
**Canadian ARET:** None of the components are listed.  
**Canadian NPRI:** The following components are listed: Ammonia (total)  
**Alberta Designated Substances:** None of the components are listed.  
**Ontario Designated Substances:** None of the components are listed.  
**Quebec Designated Substances:** None of the components are listed.
- Canada inventory** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

## Section 16. Other information

- References** : Regulation (EC) No 1272/2008 Annex VI  
National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda  
Registry of Toxic Effects of Chemical Substances  
Atrion International Inc. 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada

- Date of issue** : 2010-11-04.
- Date of previous issue** : No previous validation.
- Version** : 1

📌 Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information provided in this Material Safety Data Sheet is accurate as at the date of its issue. The information it contains is being given for safety guidance purposes and relates only to the specific material and uses described in it. This information does not necessarily apply to that material when combined with other material(s) or when used otherwise than as described herein. Final determination of the suitability of any material is the sole responsibility of the user. All materials may represent unknown hazards and should be used with caution. Yara International ASA disclaims any liability for loss or damage resulting from the use of any data, information or recommendations set out in this Material Safety Data Sheet.