

| IDENTIFICATION | | |
|-------------------------------------|-----------|--|
| Chemical Name Ammonia Solution 5/6% | | |
| Formula | NH₄OH | |
| Nº CAS | 1336-21-6 | |

PHYSICOCHEMICAL CHARACTERISTICS

| Aspect | Liquid, clear and colorless. | | | |
|----------------|------------------------------|--------------------|-------|----------------|
| Characteristic | Unit | Charact eristic | Unit | Characteristic |
| Density | g/mL | 0,970 | 0,980 | |
| Concentration | % | 5,6 | 5,8 | IT.CQ-0009 |
| рН | - | 10,5 | 13,0 | |

MAIN APPLICATIONS

Textile industry, agriculture, rubber, leather, lubricants, cosmetic, food, waste water treatment, production of films, photo printing, paintsamong others.

| | ADDITIONAL INFORMATION | | |
|--------------------|---|--|--|
| ONU No.: | Product not covered by the resolution in force on the transporto f dangerous products. | | |
| Risk No. | Product not covered by the resolution in force on the transporto f dangerous products. | | |
| Packing | Bulk. | | |
| Cautions | Corrosive product. It decomposes when heated, releasing toxic gases. The inhalation or contact with eyes may cause serious injuries. In contact with the skin, it may cause irritation. For handling, use the following PPEs: "full face" mask or Moldex double filter for ammonia gas along with goggles (if you use a double filter with Moldex mask), long scuff gloves in PVC or nitrile, leather boots or rubber, apron in PVC (type barber),besides protective clothing fabrics suitable for chemicals. | | |
| Storage | Keep it stored in an open, covered, airy place away fromsources of heat, ignition and incompatible products as reported in the SDS (FISPQ). | | |
| Validity: | Six months. | | |
| Legal Requirements | Its Product controlled by Federal Police – FP. | | |

| Technical Sheet | Code | Description |
|--------------------|----------|-----------------------|
| | 186.01.0 | Ammonia Solution 5/6% |

| HISTORY OF CHANGES | | | | |
|--------------------|--------------------------------|--|--|--|
| Date | Date Revision Notes of changes | | | |
| - | - 00 Inicial issue | | | |



| | | IDENTIFICATION | | | |
|--|--|---|---|--|--|
| Chemical Name | Ammonia Solution 20% | | | | |
| Formula | NH₄OH | | | | |
| CAS No. | 1336-21-6 | | | | |
| | PHYSICOCH | IEMICAL CHARAC | CTERISTICS | | |
| Aspect | | | | | |
| Characteristic | Liquid, clear and Unit | Minimum | Maximum | Method | |
| Density | | | | | |
| Concentration | g/mL | 0.921 | 0.920 | I.T 8.2.4-5 | |
| Silica | % | 20.0 | 21.0 | I.T 8.2.4-5 | |
| | ppm | - | 1.0 | I.T 8.2.4-11 | |
| p.H | - | 12.0 | 13.5 | I.T 8.2.4-31 | |
| | • | AIN APPLICATION | | | |
| Applications | food, waste wate among others. | , agriculture, rubb er treatment, produ | ction of films, pho | | |
| ONU No.: | 2672 | ADDITIONAL INFORMATION | | | |
| | | | | | |
| Risk No. | 80 | | | | |
| Packing | | Bulk, containers (IBCs) or polyethylene drums. Corrosive product. It decomposes when heated, releasing toxic | | | |
| Cautions | gases. Th injuries. Ir handling, double filte double filte nitrile, lea | product. It decomp e inhalation or cor n contact with the use the following er for ammonia ga er with Moldex ma ther boots or rub otective clothing fa | ntact with eyes m skin, it may cau PPEs: "full face" s along with gogg ask), long scuff g ber, apron in PV | ay cause serious use irritation. For mask or Moldex gles (if you use a gloves in PVC or /C (type barber), | |
| StorageKeep it stored sources of hea in the SDS. | | | | 5 | |
| Validity: Six months. | | | | | |
| Legal RequirementsProduct controlled by Federal Police - FP. | | | | | |
| Spacifications | Code | Revision | Date | Page | |
| Specifications | 10.2672.400.4. | 05 | 4/5/2010 | 01/01 | |
| Issued: Valdeci Jo | sé Benedito | Approve | d: Wagner Coelho | 0 | |
| Signature: | | Signatur | e: | | |
| | | | | | |

UNCONTROLLED COPY

USIQUÍMICA



PRODUCT SPECIFICATION

EP 035 REV 09

| IDENTIFICATION | | |
|---------------------------------------|--------------------|--|
| Chemical name 24/25% Ammonia Solution | | |
| Formula | NH ₄ OH | |
| CAS-number: | 1336-21-6 | |

| PHYSICOCHEMICAL CHARACTERISTICS | | | | |
|--|-----------------------------|-------|-------|------------|
| Appearance Liquid, clear and colorless | | | | |
| Characteristic | Unit Minimum Maximum Method | | | |
| Density | g/mL | 0.905 | 0.912 | IT.CQ-0009 |
| Concentration | % | 24.0 | 26.0 | 11.00-0009 |

MAIN APPLICATIONS

Textile, agricultural, rubber, leather, lubricants, food, cosmetics, wastewater treatment, film production, photo development, paint industries, among others.



| OTHER INFORMATION | | | |
|--------------------|---|--|--|
| UN No. | 2672 | | |
| No. of Risk | 80 | | |
| Packaging | In bulk, containers (IBC's) or polyethylene drums. | | |
| Cautious | Corrosive product. Decomposes when heated, releasing toxic gases. Inhalation or eye contact can cause serious injury. In contact with the skin it can cause irritation. For handling, use the following PPE's: full face mask or moldex with double filter for ammonia gas together with wide vision goggles (if using the Moldex mask with double filter), long sleeves in PVC or nitrile, boots leather or rubber, pvc apron (barber-type), in addition to protective clothing with fabrics suitable for chemical products. | | |
| Storage | Keep stored in an open, covered, ventilated place, away from sources of heat, ignition and incompatible products as informed in the MSDS. | | |
| Shelf Life | Six months depending on ideal storage conditions. | | |
| Legal requirements | Product controlled by the Federal Police - FP. | | |

| | Code | Description |
|-----------|----------|----------------------------------|
| | 113.01.0 | 24/ 25% Ammonia Solution |
| | 113.13.0 | 24/ 25% Ammonia Solution BB30IN |
| | 113.15.0 | 24/ 25% Ammonia Solution BB50IN |
| Datasheet | 113.19.0 | 24/ 25% Ammonia Solution BBC |
| | 113.49.0 | 24/ 25% Ammonia Solution IBCCL |
| | 113.48.0 | 24/ 25% Ammonia Solution IBCEV |
| | 113.42.0 | 24/ 25% Ammonia Solution IBCIN |
| | 113.22.0 | 24/ 25% Ammonia Solution TP200IU |

| HISTORY OF CHANGES | | | |
|--------------------|-----------------------------------|--|--|
| Date | Date Revision Comments of Changes | | |
| 08.10.2013 | 07 | Update of the document layout, the technical instruction for product analysis and exclusion of the "silica" parameter control, as agreed with the commercial management, via e-mail, dated 05/08/2013. | |
| - | 08 | Revision of the form due to approval via the Qualiex system. Inclusion of omega codes. | |
| - | 09 | Correction of concentration limits. | |





| IDENTIFICATION | | |
|------------------------------------|-----------|--|
| Chemical name 26% Ammonia Solution | | |
| Formula | NH₄OH | |
| CAS-number: | 1336-21-6 | |

| PHYSICOCHEMICAL CHARACTERISTICS | | | | | |
|---------------------------------|-----------------------------|---------|---------|------------|--|
| Appearance | Liquid, clear and colorless | | | | |
| Characteristic | Unit | Minimum | Maximum | Method | |
| Density | g/mL | 0.900 | 0.905 | IT.CQ-0009 | |
| Concentration | % | 25.0 | 27.0 | 11.00-0009 | |

MAIN APPLICATIONS

Textile, agricultural, rubber, leather, lubricants, food, cosmetics, wastewater treatment, film production, photo development, paint industries, among others.

| OTHER INFORMATION | | | | |
|--------------------|---|--|--|--|
| UN No. | 2672 | | | |
| No. of Risk | 80 | | | |
| Packaging | In bulk, containers (IBC's) or polyethylene drums. | | | |
| Cautious | Corrosive product. Decomposes when heated, releasing toxic gases. Inhalation or eye contact can cause serious injury. In contact with the skin it can cause irritation. For handling, use the following PPE's: full face mask or moldex with double filter for ammonia gas together with wide vision goggles (if using the Moldex mask with double filter), long sleeves in PVC or nitrile, boots leather or rubber, pvc apron (barber-type), in addition to protective clothing with fabrics suitable for chemical products. | | | |
| Storage | Keep stored in an open, covered, ventilated place, away from sources of heat, ignition and incompatible products as informed in the MSDS. | | | |
| Shelf Life | Six months depending on ideal storage conditions. | | | |
| Legal requirements | Product controlled by the Federal Police - FP. | | | |

| Datasheet | Code | Description |
|-----------|----------|----------------------|
| | 114.01.0 | 26% Ammonia Solution |

| HISTORY OF CHANGES | | | |
|--------------------|----------|--|--|
| Date | Revision | Comments of Changes | |
| 08.10.2013 | 00 | Initial Issue | |
| - | 01 | Revision of the form due to approval via the Qualiex system. Inclusion of omega codes. | |
| - | 02 | Density change from 0.900 to 0.907 to 0.900 to 0.905. | |



| | | | IDENTI | FICATIC | N | |
|---|----------------------|---|-------------------------|---|-------------------|--------------|
| Chemical | Ammonia Solution 28% | | | | | |
| Name Formula | NH₄O | Н | | | | |
| | - | | | | | |
| CAS No. | 1336- | | | | | |
| | | PHYSICOC | HEMICA | L CHAR | ACTERISTICS | |
| Aspect | Liquic | Liquid, clear and colorless. | | | | |
| Characteristic | | Unit | Mini | mum | Maximum | Method |
| Density | | g/mL | 3.0 | 398 | 0.894 | I.T 8.2.4-5 |
| Concentration | | % | 28 | 3.0 | 29.0 | I.T 8.2.4-5 |
| Silica | ppm | | | - | 2.0 | I.T 8.2.4-11 |
| MAIN APPLICATIONS | | | | | | |
| Applications | waste | extile industry, agriculture, rubber, leather, lubricants, cosmetic, food, aste water treatment, production of films, photo printing, paints mong others. | | | | |
| | | | TIONAL | / INFORM | MATION | |
| ONU No.: | | 2672 | | | | |
| Risk No. | 80 | | | | | |
| Packing | | Bulk, conta | iners (IB | Cs) or po | olyethylene drums | |
| Cautions Corrosive product. It decomposes when heated, releasing gases. The inhalation or contact with eyes may cause se injuries. In contact with the skin can cause irritation. handling, use the following PPEs: facial mask "full face Moldex double filter for ammonia gas along with goggles (i use a double filter with Moldex mask), long scuff gloves in or nitrile, leather boots or rubber, apron in PVC (barber t besides protective clothing fabrics suitable for chemicals. | | | | hay cause serious use irritation. For ask "full face" or ith goggles (if you uff gloves in PVC VC (barber type), chemicals. | | |
| Storage | | Keep it stored in an open, covered, airy place away from sources of heat, ignition and incompatible products as reported in the SDS. | | | | |
| Validity | | Six months | | | | |
| Legal Requiren | nents | Product co | ntrolled b | by Feder | al Police - FP | |
| Specifications | Code Re | | Rev | ision | Date | Page |
| | 10.2672.3.00.8 0 | | 6 | 4/5/2010 | 01/01 | |
| Issued: Valdeci José Benedito | | | Approved: Wagner Coelho | | | |
| Signature: | | | | Signature: | | |
| | | | | | | |

UNCONTROLLED COPY