Safe Handling - Dimethylamine

1. **Product Description – Physical Properties:**
   Dimethylamine is a colorless, flammable liquefied gas with a characteristic fishy or ammonia type odor
   Chemical Formula – (CH$_3$)$_2$NH
   CAS 124-40-3 at 100% Volume

2. **Specific Hazards**
   DANGER!
   FLAMMABLE GAS
   MAY CAUSE FLASH FIRE
   CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS
   MAY BE HARMFUL IF SWALLOWED
   MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA
   CONTENTS UNDER PRESSURE
   Keep away from heat, sparks and flame
   Do not puncture or incinerate container
   Do not breathe gas
   Do not ingest
   Do not get on skin or clothing
   May cause target organ damage, based on animal data
   Use only with adequate ventilation
   Wash thoroughly after handling
   Keep container closed
   Do not get in eyes, on skin or on clothing

3. **Material Safety Data Sheet (MSDS)**
   Airgas MSDS # 1020 is available for download at [www.airgas.com](http://www.airgas.com) or ask your Airgas associate for a copy

4. **First Aid**
   See MSDS

5. **PPE**
   See MSDS

6. **Shipping Description**
   If over 1000 lbs. – UN 1032, Dimethylamine, Anhydrous, RQ, 2.1
   If under 1000 lbs. – UN 1032, Dimethylamine, Anhydrous, 2.1
   Hazard Class – 2.1
   Markings, Labels – Flammable Gas (2)
7. Available Containers:

<table>
<thead>
<tr>
<th>Container</th>
<th>DOT Spec</th>
<th>Nominal Dimensions (D x L)</th>
<th>Average Tare (Lbs)</th>
<th>Average Internal Volume(ft³)</th>
<th>Product Capacity (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>350 (A-1)</td>
<td>4BW240</td>
<td>16 x 50</td>
<td>75</td>
<td>3.83</td>
<td>125</td>
</tr>
<tr>
<td>½ Ton (A-5)</td>
<td>4BW240</td>
<td>30 x 57</td>
<td>315</td>
<td>16</td>
<td>550</td>
</tr>
</tbody>
</table>

NOTE: All Containers are shipped with a vapor (head) pressure of 26 psig at 70º

8. Valves

Type – CGA 705, With Washer, Hand wheel Operated (unless otherwise noted)
Connection Torque - 40 – 60 ft lbs
Configuration - All cylinders are configured with double valving to allow either liquid or gas withdrawal
Orientation - Valves are oriented in such a position to allow for ease of hook up

9. Pressure Relief Device (PRD)

A PRD is not required as per CGA S-1.1

10. Handling

**CAUTION:**
Cylinders should only be moved with a suitable fork lift

Do not ingest
Avoid contact with eyes, skin and clothing
Keep container closed
Use only with adequate ventilation
Keep away from heat, sparks and flame
To avoid fire, minimize ignition sources
Use explosion-proof electrical (ventilating, lighting and material handling) equipment
Do not puncture or incinerate container
Wash thoroughly after handling
High pressure gas
Use equipment rated for cylinder pressure
Close valve after each use and when empty
Protect cylinders from physical damage; do not drag, roll, slide, or drop
Use a suitable hand truck for cylinder movement
A-1 and A-5 Cylinders are equipped with a forklift base for ease of movement
11. Storage

Keep container tightly closed
Keep container in a cool, well-ventilated area
Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over
Cylinder temperatures should not exceed 52 °C (125°F)

12. Recommended Equipment for Proper Usage:

1. Stainless steel positive seal regulator, part number Y11-C444 with a maximum outlet pressure of 100 psig
2. Line pressure relief valve rated to 110 psig maximum
3. Check Valve (2) part number Y33-442 (Installed in-line)

NOTE:
Check valves should be put on a scheduled maintenance program to be replaced in intervals that are consistent with use but at least every six months

13. Hook Up Procedures:

CAUTION:
If nitrogen is used to pressurize cylinder for liquid withdrawal, a suitable safety device must be installed to prevent over pressurization of the cylinder. Also, a dual check valve configuration must be installed in the process line to prevent pressure back flow into the cylinder.

Do not exceed 100 psig (50– 100 psig is recommended) regulated nitrogen pressure to the cylinder.

FAILURE TO COMPLY CAN RESULT IN CATASTROPHIC CYLINDER OR LINE FAILURE

13.1 If withdrawing liquid with a nitrogen pad:

13.1.1 Insure valves are tightly closed
13.1.2 Remove Dust Caps from Valve Outlets
13.1.3 Install Regulator with Nitrogen Line to Vapor Valve – Install Washer and torque fitting to 40 – 60 ft lbs.
13.1.4 Install Product discharge line to liquid valve – Install Washer and torque fitting to 40 - 60 ft lbs
13.1.5 Slowly open liquid valve allowing product to fill the process line
13.1.6 Adjust nitrogen pressure to desired setting (see note above regarding maximum pressure)
13.1.7 Slowly open Vapor valve allowing nitrogen pressure to the cylinder
13.2 If withdrawing vapor only

13.2.1 Insure valve is tightly closed
13.2.2 Remove Dust Cap from Vapor Valve
13.2.3 Install Product discharge line to Vapor Valve – Install Washer and torque fitting to 40 - 60 ft lbs
13.2.4 Slowly open valve allowing product to fill the process line

14. Disconnect Procedures:

14.1 If withdrawing liquid with a nitrogen pad

14.1.1 Close Vapor Valve
14.1.2 Reduce regulated Nitrogen Line pressure to zero and depressurize line
14.1.3 Close Liquid Valve
14.1.4 Remove Nitrogen line and regulator – use caution as there may be residual pressure in the nitrogen line
14.1.5 Install Valve Dust Cap
14.1.6 Open Liquid valve and vent all residual cylinder pressure to appropriate receptacle
14.1.7 Close Liquid Valve
14.1.8 Install Valve Dust Cap

14.2 If withdrawing vapor only

14.2.1 Close Vapor Valve
14.2.2 Remove process line – use caution as there may be residual pressure and/or product in the line
14.2.3 Install Valve Dust Cap
Typical A-5 Cylinder Handling

Typical A-1 Cylinder Handling

Typical Valve Configuration (A-1, A-5 Cylinders)
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