

Oxygen & Argon Works Ltd.	Spec. No. G-06.002	
Product Manufacturing Control	Issue: G	Date: 14/02/2008
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STANDARD GAS MIXTURES

UNCERTIFIED INDUSTRIAL GRADE (Unanalyzed) MIXTURES – These standard mixtures are prepared by the same methods used to prepare Certified Standards. The following grades of gases are used in the manufacturing process:

*Oxygen 99.6%, Nitrogen 99.999%, Argon 99.999%, Helium 99.999%,
Carbon Dioxide 99.5%, Hydrogen 99.99%, Air (atmospheric).*

Mixtures requiring higher grades of gases and **food grades gas mixtures** would be treated as a *Special Order (Require a contract review)*.

All mixtures maybe prepared to 200 bar except for those indicated with a maximum preparation pressure.

STANDARD GAS MIXTURE CATALOGUE

AIR	99.0%	CARBON DIOXIDE CO2	1.0%		
AIR	98.5%	CARBON DIOXIDE CO2	1.5%		
AIR	98.0%	CARBON DIOXIDE CO2	2.0%		
AIR	97.5%	CARBON DIOXIDE CO2	2.5%		
AIR	97.0%	CARBON DIOXIDE CO2	3.0%		
AIR	96.5%	CARBON DIOXIDE CO2	3.5%		
AIR	96.0%	CARBON DIOXIDE CO2	4.0%		
AIR	95.0%	CARBON DIOXIDE CO2	5.0%		
AIR	94.0%	CARBON DIOXIDE CO2	6.0%		
AIR	93.0%	CARBON DIOXIDE CO2	7.0%		
AIR	92.0%	CARBON DIOXIDE CO2	8.0%		
AIR	91.0%	CARBON DIOXIDE CO2	9.0%		
AIR	90.0%	CARBON DIOXIDE CO2	10.0%		
AIR	90.0%	CARBON DIOXIDE CO2	5.0%	OXYGEN O ₂	5.0%.
OXYGEN O ₂	80.0%	NITROGEN N ₂	20.0%		
OXYGEN O ₂	50.0%	NITROGEN N ₂	40.0%	CARBON DIOXIDE CO ₂	10.0%
OXYGEN O ₂	96.0%	CARBON DIOXIDE CO ₂	4.0%		
OXYGEN O ₂	95.0%	CARBON DIOXIDE CO ₂	5.0%		
OXYGEN O ₂	92.0%	CARBON DIOXIDE CO ₂	8.0%		
OXYGEN O ₂	94.0%	CARBON DIOXIDE CO ₂	6.0%		
OXYGEN O ₂	80.0%	CARBON DIOXIDE CO ₂	20.0%		
OXYGEN O ₂	50.0%	HELIUM He	50.0%		
NITROGEN N ₂	99.5%	OXYGEN O ₂	0.5%		
NITROGEN N ₂	99.0%	OXYGEN O ₂	1.0%		
NITROGEN N ₂	97.5%	OXYGEN O ₂	2.5%		
NITROGEN N ₂	97.0%	OXYGEN O ₂	3.0%		
NITROGEN N ₂	96.0%	OXYGEN O ₂	4.0%		
NITROGEN N ₂	95.0%	OXYGEN O ₂	5.0%		
NITROGEN N ₂	94.0%	OXYGEN O ₂	6.0%		
NITROGEN N ₂	92.0%	OXYGEN O ₂	8.0%		
NITROGEN N ₂	91.0%	OXYGEN O ₂	9.0%		
NITROGEN N ₂	90.0%	OXYGEN O ₂	10.0%		
NITROGEN N ₂	89.0%	OXYGEN O ₂	11.0%		
NITROGEN N ₂	87.0%	OXYGEN O ₂	13.0%		
NITROGEN N ₂	84.0%	OXYGEN O ₂	16.0%		
NITROGEN N ₂	80.0%	OXYGEN O ₂	20.0%		
NITROGEN N ₂	79.0%	OXYGEN O ₂	21.0%		
NITROGEN N ₂	74.0%	OXYGEN O ₂	26.0%		
NITROGEN N ₂	71.0%	OXYGEN O ₂	29.0%		
NITROGEN N ₂	60.0%	OXYGEN O ₂	40.0%		
NITROGEN N ₂	99.0%	CARBON DIOXIDE CO ₂	1.0%		
NITROGEN N ₂	95.0%	CARBON DIOXIDE CO ₂	5.0%		
NITROGEN N ₂	90.0%	CARBON DIOXIDE CO ₂	10.0%		
NITROGEN N ₂	80.0%	CARBON DIOXIDE CO ₂	20.0%		



Originator: Meir Ben Ishay	Date: 14.02.2008	Signature:
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<i>NITROGEN N2</i>	<i>70.0%</i>	<i>CARBON DIOXIDE CO2</i>	<i>30.0%</i>	<i>150 bar maximum pressure</i>	
<i>NITROGEN N2</i>	<i>65.0%</i>	<i>CARBON DIOXIDE CO2</i>	<i>35.0%</i>	<i>130 bar maximum pressure</i>	
<i>NITROGEN N2</i>	<i>60.0%</i>	<i>CARBON DIOXIDE CO2</i>	<i>40.0%</i>	<i>110 bar maximum pressure</i>	
<i>NITROGEN N2</i>	<i>50.0%</i>	<i>CARBON DIOXIDE CO2</i>	<i>50.0%</i>	<i>90 bar maximum pressure</i>	
NITROGEN N2	93.0%	OXYGEN O2	3.5%	CARBON DIOXIDE CO2	3.5%
NITROGEN N2	92.0%	OXYGEN O2	3.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	90.0%	OXYGEN O2	5.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	88.0%	OXYGEN O2	6.0%	CARBON DIOXIDE CO2	6.0%
NITROGEN N2	87.0%	OXYGEN O2	12.0%	CARBON DIOXIDE CO2	1.0%
NITROGEN N2	87.0%	OXYGEN O2	6.0%	CARBON DIOXIDE CO2	7.0%
NITROGEN N2	87.0%	OXYGEN O2	7.0%	CARBON DIOXIDE CO2	6.0%
NITROGEN N2	83.0%	OXYGEN O2	12.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	83.0%	OXYGEN O2	10.0%	CARBON DIOXIDE CO2	7.0%
NITROGEN N2	79.0%	OXYGEN O2	16.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	78.0%	OXYGEN O2	16.0%	CARBON DIOXIDE CO2	6.0%
NITROGEN N2	77.0%	OXYGEN O2	16.0%	CARBON DIOXIDE CO2	7.0%
NITROGEN N2	75.0%	OXYGEN O2	20.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	74.0%	OXYGEN O2	20.0%	CARBON DIOXIDE CO2	6.0%
NITROGEN N2	74.0%	OXYGEN O2	21.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	69.0%	OXYGEN O2	21.0%	CARBON DIOXIDE CO2	10.0%
NITROGEN N2	59.0%	OXYGEN O2	40.0%	CARBON DIOXIDE CO2	1.0%
NITROGEN N2	55.0%	OXYGEN O2	40.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	55.0%	OXYGEN O2	35.0%	HELIUM He	10.0%
NITROGEN N2	94.0%	CARBON DIOXIDE CO2	5.0%	OXYGEN O2	1.0%
NITROGEN N2	85.0%	CARBON DIOXIDE CO2	10.0%	OXYGEN O2	5.0%
NITROGEN N2	83.0%	CARBON DIOXIDE CO2	12.0%	OXYGEN O2	5.0%
NITROGEN N2	80.0%	CARBON DIOXIDE CO2	15.0%	OXYGEN O2	5.0%
<i>NITROGEN N2</i>	<i>60.0%</i>	<i>CARBON DIOXIDE CO2</i>	<i>30.0%</i>	<i>OXYGEN O2</i>	<i>10.0%</i> <i>150 bar maximum pressure</i>
NITROGEN N2	60.0%	HYDROGEN H2	40.0%		
NITROGEN N2	70.0%	HYDROGEN H2	30.0%		
NITROGEN N2	75.0%	HYDROGEN H2	25.0%		
NITROGEN N2	85.0%	HYDROGEN H2	15.0%		
NITROGEN N2	87.0%	HYDROGEN H2	13.0%		
NITROGEN N2	90.0%	HYDROGEN H2	10.0%		
NITROGEN N2	93.0%	HYDROGEN H2	7.0%		
NITROGEN N2	94.0%	HYDROGEN H2	6.0%		
NITROGEN N2	95.0%	HYDROGEN H2	5.0%		
NITROGEN N2	96.0%	HYDROGEN H2	4.0%		
NITROGEN N2	99.0%	HYDROGEN H2	1.0%		
HYDROGEN H2	75.0%	NITROGEN N2	25.0%		
NITROGEN N2	80.0%	HYDROGEN H2	10.0%	CARBON DIOXIDE CO2	10.0%
NITROGEN N2	90.0%	HELIUM He	10.0%		
NITROGEN N2	80.0%	HELIUM He	20.0%		
NITROGEN N2	55.0%	HELIUM He	40.0%	CARBON DIOXIDE CO2	5.0%
NITROGEN N2	72.0%	ARGON Ar	26.0%	HELIUM He	2.0%
ARGON Ar	98.0%	OXYGEN O2	2.0%		
ARGON Ar	97.0%	OXYGEN O2	3.0%		
ARGON Ar	95.0%	OXYGEN O2	5.0%		
ARGON Ar	82.0%	OXYGEN O2	18.0%		
ARGON Ar	80.0%	OXYGEN O2	20.0%		
ARGON Ar	75.0%	OXYGEN O2	25.0%		
ARGON Ar	70.0%	OXYGEN O2	30.0%		
ARGON Ar	50.0%	OXYGEN O2	50.0%		



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ARGON Ar 85.0% NITROGEN N₂ 15.0%

ARGON Ar 99.0% HYDROGEN H₂ 1.0%
 ARGON Ar 98.0% HYDROGEN H₂ 2.0%
 ARGON Ar 97.0% HYDROGEN H₂ 3.0%
 ARGON Ar 96.0% HYDROGEN H₂ 4.0%
 ARGON Ar 95.0% HYDROGEN H₂ 5.0%
 ARGON Ar 93.0% HYDROGEN H₂ 7.0%
 ARGON Ar 92.0% HYDROGEN H₂ 8.0%
 ARGON Ar 90.0% HYDROGEN H₂ 10.0%
 ARGON Ar 80.0% HYDROGEN H₂ 20.0%
 ARGON Ar 65.0% HYDROGEN H₂ 35.0%

ARGON Ar 98.0% CARBON DIOXIDE CO₂ 2.0%
 ARGON Ar 97.5% CARBON DIOXIDE CO₂ 2.5%
 ARGON Ar 97.0% CARBON DIOXIDE CO₂ 3.0%
 ARGON Ar 96.5% CARBON DIOXIDE CO₂ 3.5%
 ARGON Ar 96.0% CARBON DIOXIDE CO₂ 4.0%
 ARGON Ar 95.0% CARBON DIOXIDE CO₂ 5.0%
 ARGON Ar 94.0% CARBON DIOXIDE CO₂ 6.0%
 ARGON Ar 93.0% CARBON DIOXIDE CO₂ 7.0%
 ARGON Ar 92.0% CARBON DIOXIDE CO₂ 8.0%
 ARGON Ar 90.0% CARBON DIOXIDE CO₂ 10.0%
 ARGON Ar 88.0% CARBON DIOXIDE CO₂ 12.0%
 ARGON Ar 86.0% CARBON DIOXIDE CO₂ 14.0%
 ARGON Ar 85.0% CARBON DIOXIDE CO₂ 15.0%
 ARGON Ar 82.0% CARBON DIOXIDE CO₂ 18.0%
 ARGON Ar 80.0% CARBON DIOXIDE CO₂ 20.0%
 ARGON Ar 75.0% CARBON DIOXIDE CO₂ 25.0%
 ARGON Ar 70.0% CARBON DIOXIDE CO₂ 30.0%



180 bar maximum pressure
150 bar maximum pressure

ARGON Ar 91.0% CARBON DIOXIDE CO₂ 5.0% OXYGEN O₂ 4.0%
 ARGON Ar 90.0% CARBON DIOXIDE CO₂ 7.0% OXYGEN O₂ 3.0%
 ARGON Ar 84.0% CARBON DIOXIDE CO₂ 13.0% OXYGEN O₂ 3.0%
 ARGON Ar 80.0% CARBON DIOXIDE CO₂ 19.0% OXYGEN O₂ 1.0%

ARGON Ar 75.0% HELIUM He 25.0%
 ARGON Ar 65.0% HELIUM He 35.0%
 ARGON Ar 50.0% HELIUM He 50.0%

ARGON Ar 65.0% HELIUM He 26.5% CARBON DIOXIDE CO₂ 8.0% OXYGEN O₂ 0.5%

HELIUM He 95.0% OXYGEN O₂ 5.0%
 HELIUM He 90.0% OXYGEN O₂ 10.0%
 HELIUM He 84.0% OXYGEN O₂ 16.0%
 HELIUM He 80.0% OXYGEN O₂ 20.0%
 HELIUM He 98.0% NITROGEN N₂ 2.0%
 HELIUM He 95.0% NITROGEN N₂ 5.0%
 HELIUM He 70.0% NITROGEN N₂ 30.0%

HELIUM He 82.0% NITROGEN N₂ 13.5% CARBON DIOXIDE CO₂ 4.5%
 HELIUM He 74.0% NITROGEN N₂ 20.0% CARBON DIOXIDE CO₂ 6.0%
 HELIUM He 74.9% NITROGEN N₂ 23.4% CARBON DIOXIDE CO₂ 1.7%
 HELIUM He 75.0% NITROGEN N₂ 18.0% CARBON DIOXIDE CO₂ 7.0%
 HELIUM He 84.0% NITROGEN N₂ 11.5% CARBON DIOXIDE CO₂ 4.5%
 HELIUM He 81.0% NITROGEN N₂ 10.5% CARBON DIOXIDE CO₂ 8.5%
 HELIUM He 70.0% NITROGEN N₂ 15.0% CARBON DIOXIDE CO₂ 15.0%
 HELIUM He 60.0% NITROGEN N₂ 20.0% CARBON DIOXIDE CO₂ 20.0%
 HELIUM He 56.0% NITROGEN N₂ 22.0% CARBON DIOXIDE CO₂ 22.0%
 HELIUM He 90.0% ARGON Ar 7.5% CARBON DIOXIDE CO₂ 2.5%

HELIUM He 75.0% ARGON Ar 25.0%
 HELIUM He 50.0% ARGON Ar 50.0%

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HELIUM He	72.0%	NITROGEN N ₂	23.0%	CARBON DIOXIDE CO ₂	4.0%	OXYGEN O ₂	1.0%
HELIUM He	82.0%	NITROGEN N ₂	8.0%	CARBON DIOXIDE CO ₂	8.0%	CARBON MONOXIDE CO	2.0%

CARBON DIOXIDE CO₂ 80.0% *AIR* 20.0% **65 bar maximum pressure**
CARBON DIOXIDE CO₂ 80.0% *NITROGEN N₂* 20.0% **65 bar maximum pressure**
CARBON DIOXIDE CO₂ 80.0% *NITROGEN N₂* 15.0% *OXYGEN O₂* 5.0% **65 bar maximum pressure**

Note: Mixtures containing high proportions of CO₂ have a maximum filling pressure determined by the prevailing atmospheric temperature. The exact pressure is to be decided by the Technical Manager.

Shelf Life of Gas Mixtures is 12 months except for the following:

Mixtures containing CO	6 months.
Mixtures containing CO ₂ (≥10%)	6 months.
Mixtures containing H ₂ (≤10%)	6 months.

The Company reserves the right to change the above specifications at any time.

Quality Assurance - According to company QC procedure No. 06.01
[with reference to the tolerances stated in G-06.001]

Processing - According to Company Works' Instructions No. 02.02.

Packing & Distribution - In high pressure gas cylinders and batteries of cylinders.

Valve Outlet Thread - The valve shall be per the major component of the mixture, according to IS 637 part 3.

Note: where the mixture contains more than 5% of hydrogen, hydrogen valve shall be used. Up to and equal to 5% of hydrogen, the valve shall be per the major component of the mixture.

Hazardous Materials Codes - As per most hazardous component.

