

# NITROGEN GAS GENERATORS BASED ON PSA TECHNOLOGY



( ISO 9001 : 2008 CERTIFIED COMPANY )



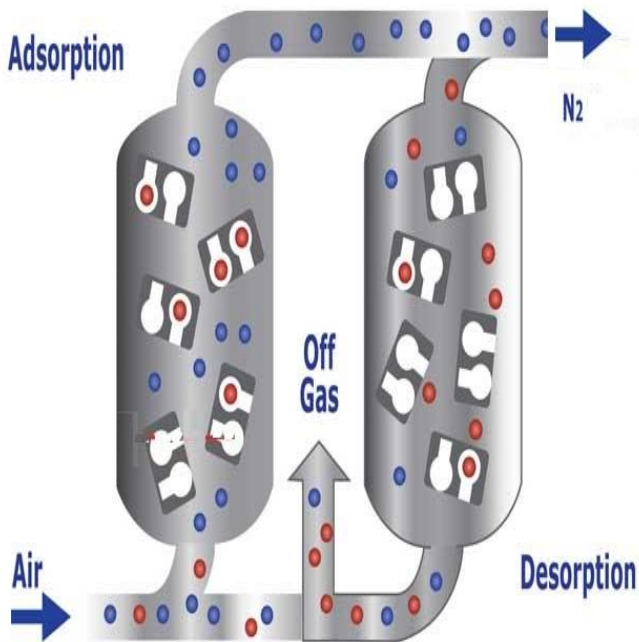
**SAM GAS PROJECTS** is ISO 9001:2008 certified, Professionally Managed Engineering Organization, Specialized in Design , Manufacture , Supply & commissioning of ‘State of the Art’ Nitrogen, Oxygen, Hydrogen Gas Plants, Ammonia Crackers, Gas Purification Systems, Compressed Air Dryers and Gas storage systems.

**SAM GAS PROJECTS** has supplied more than **550** Systems, which are working satisfactorily all over India & across the Globe in more than 40 countries.

### **RANGE OF PRODUCTS :**

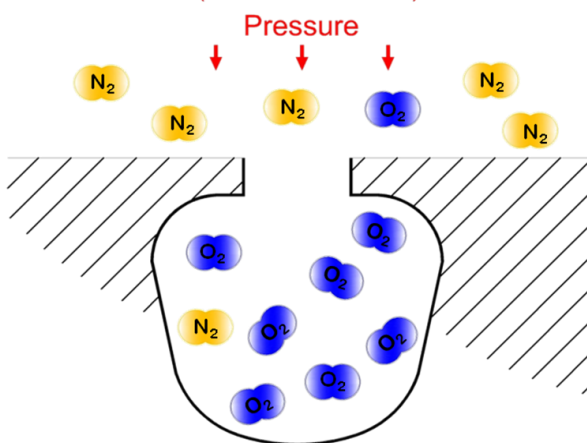
- ✓ **Nitrogen Gas Plants – PSA Based**
- ✓ **Oxygen Gas Plants**
  - PSA Based
  - VPSA Based
- ✓ **Hydrogen Gas Plants**
  - Ammonia Cracker Based
  - Water Electrolysis Based
- ✓ **Ammonia Cracker Units**
  - Electrically Heated Type
  - Gas Fired Type
- ✓ **Compressed Air Dryers**
  - Heat of Compression Type
  - Internally Heat Re-activated type
  - No Purge Loss, Split flow Type
  - Blower Re-activated type
  - Heatless Type
- ✓ **Gas Purifications Systems.**
- ✓ **Ammonia Storage Systems.**
- ✓ **Exo / Endo Gas Generators**
- ✓ **Allied Equipments for Air & Gas.**





### Carbon Molecular Sieves (CMS)

(MAGNIFIED VIEW)



### NITROGEN PRODUCTION PROCESS:

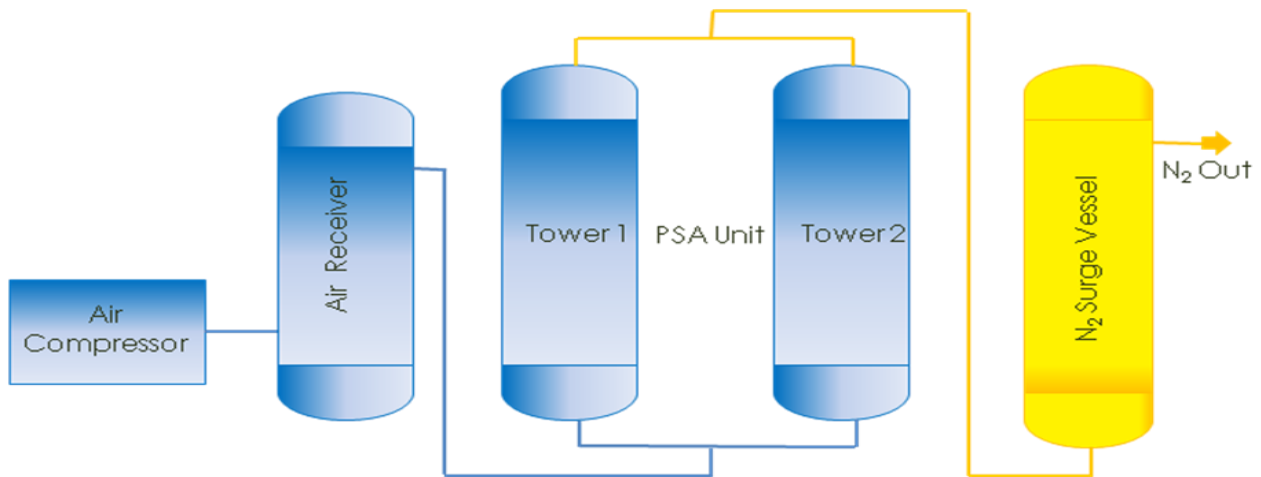
PSA Nitrogen Generators are based on well proven technology using Carbon Molecular Sieves (CMS). CMS is an adsorbent having infinite number of small pores. When CMS is used in the PSA process, an oxygen Molecules, having a smaller diameter than a Nitrogen Molecule, passes through the pores and is finally adsorbed. Therefore, the Nitrogen is recovered to a high degree while almost all the Oxygen is adsorbed. Adsorption of Oxygen Molecules happens at particular pressure. In case of higher or lower pressure performance of carbon molecular sieve varies. During regeneration process , as soon as PSA tower pressure brought down to atmospheric conditions , oxygen molecules comes out of pores of carbon molecular sieve. It is important to note that CMS performance varies with temperature. While design of PSA based Nitrogen Plants based on Indian operating conditions i.e. operating temperature as 40°C & for this necessary correction factors are being applied while designing the Nitrogen gas plant. In PSA based nitrogen gas plants separation of Nitrogen is being done by physical means.



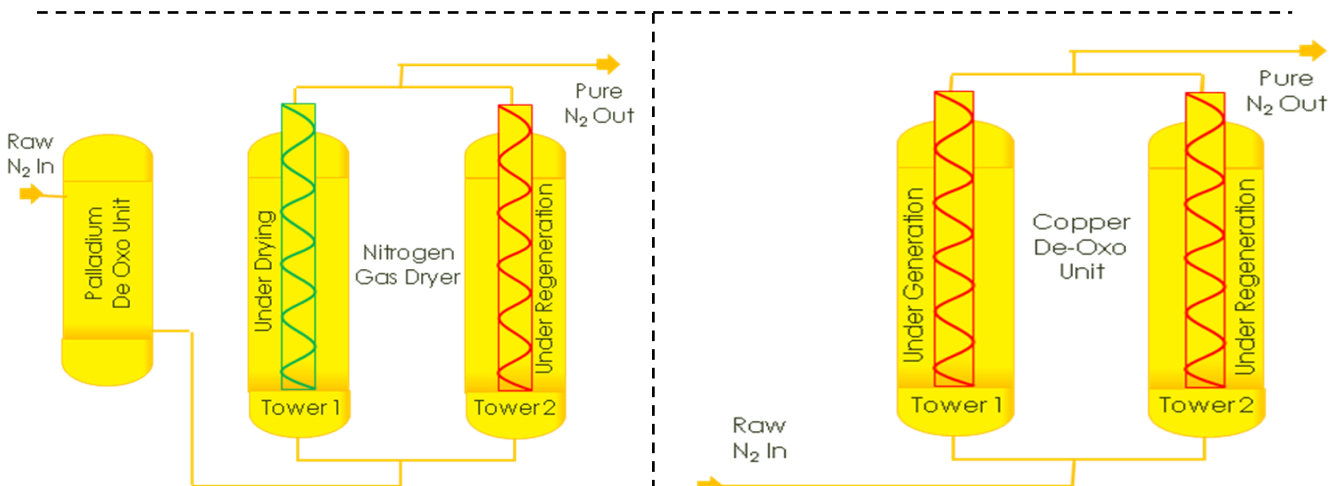
### NITROGEN GAS PLANT - MODELS :

	MS MODEL	DX MODEL	CU-DX MODEL	LAB SACLE
Capacity	1 to 2000 NM <sup>3</sup> /Hr.	1 to 2000 NM <sup>3</sup> /Hr.	1 to 2000 NM <sup>3</sup> /Hr.	5 to 100 LPM
<b>Composition :</b>				
Oxygen	0.01% to 5.0%	1.0 to 3.0 PPM	1.0 PPM	5.0% to 10 PPM
Hydrogen	Nil	0.5% or Higher	Nil	Nil
Nitrogen + Others	95% to 99.99%	Balance	99.9999%	95% to 99.999%
Dew Point	(-) 40°C or better	(-) 60°C or better	(-) 60°C or better	(-) 40°C or better
Pressure	5.0 Barg or Higher	5.0 Barg or Higher	5.0 Barg or Higher	5.0 Barg or Higher

### FLOW DIAGRAM FOR NITROGEN GAS PLANT



**MS - MODEL**



**DX - MODEL**

**CU DX - MODEL**

## APPLICATIONS :

- Metallurgical Industry ( CRCA / Galvanizing )
- Pharmaceuticals Industry
- Chemical Industry
- Pesticide Industry
- Electronics Industry
- Tyre manufacturing
- Fertilizer Units
- Textile / fiber / POY / PFY Units
- Cable Industry
- Petrochemical
- Biodiesel Plants
- Food & beverage
- Lamp manufacturing
- T.V. Picture tubes Manufacturing
- Edible oil
- Glass Manufacturing
- Cold Storages

## ADVANTAGES OF NITROGEN GAS PLANTS :

- On Site Nitrogen Generation.
- Easy to Operate & Maintain .
- High Reliability
- On line Control on Nitrogen quality
- Automatic operation , no manual intervention.
- Low generation cost.
- Payback Period less than a year .
- No dependency on external Agencies .





## OUR GLOBAL PRESENCE



**SAM GAS PROJECTS PVT. LTD.**  
( ISO 9001 : 2008 CERTIFIED COMPANY )

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