

# NITROGEN



## Advantages

- Best-in-class safety
- Expertise in both liquid (cryogenic) and membrane (non-cryogenic) nitrogen technologies
- Large and diverse equipment fleet
- High-value synergies with other USAD services
- Extensive experience in downstream, midstream, upstream, chemical, and industrial applications
- Highly qualified project planners, management, and field crews



Skid Mounted Vaporizer Units

USA DeBusk provides nitrogen services for customer plant or field operations, as well as for integrated support of complementary services.

We offer nitrogen generated using both liquid (cryogenic) and on-site membrane separation (non-liquid) technologies.

Our self-contained, mobile units provide nitrogen at flow rates, pressures, and temperatures to effectively serve in purging, drying, displacement, blanketing, pressure testing, and other applications.

## TECHNOLOGIES

**SMVU.** Skid Mounted Vaporizer Units produce nitrogen gas at flow rates of 90,000 SCFH and pressures up to 225 psi. These units vaporize liquid nitrogen using steam, eliminating diesel fuel usage and ensuring zero carbon emissions. For higher SCFH requirements, multiple units can be connected in series to increase flow rates. USA DeBusk is one of the few providers with ready availability of these unique and innovative units.

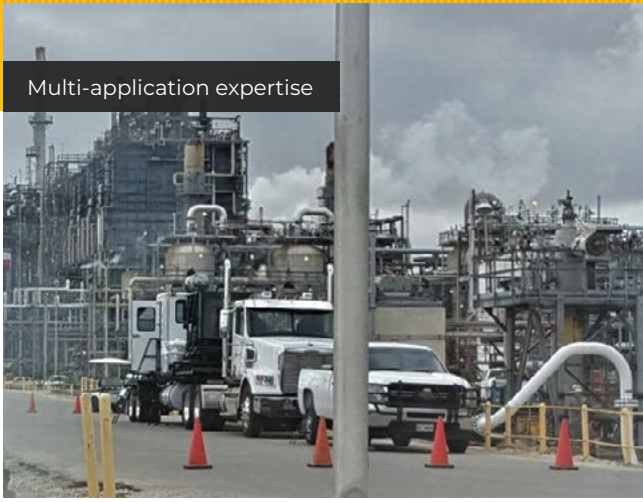
**Membrane.** Nitrogen Membrane Units generate nitrogen gas on-site at flow rates up to 1,500 SCFM and pressures as high as 4,500 psi.

**Liquid Pumper.** Liquid nitrogen units provide from 300 to 12,000 SCFM at up to 6,000 psi and 500°F. They offer a 6,000 gal transport capacity for a 500,000 SCF equivalent.

**Transportation & Storage.** We have a complete line of nitrogen transport and storage equipment to serve your projects. Included are units with small footprints, high and low pressure abilities, and off-road capabilities. Our queen storage transports have 16,000 gal on-site storage capacities and king transports have 24,500 gal capacities. Both units have the ability to load and unload simultaneously. Our storage and transport services can be an effective solution in planning and staging nitrogen during hurricanes and other emergency events.



Multi-application expertise



Liquid and membrane nitrogen services



Large, diverse equipment fleet

## REFINERY & INDUSTRIAL

USA DeBusk is a reliable provider of nitrogen services for refineries, plants, terminals, and industrial facilities.

- Nitrogen for refinery turnarounds
- Purging of refinery lines for safe repair and maintenance
- Catalyst cool down with nitrogen
- Catalyst re-heat with nitrogen
- Heat exchanger nitrogen purges
- Catalyst inerting with nitrogen
- In-line inspection (ILI) with nitrogen
- Tank/vessel inerting
- Pressure testing
- Drying and dewatering
- Nitrogen for emergency outages and response

## MIDSTREAM

We serve pipeline operations, gas plants, compressor stations, and other midstream applications.

- DOT-regulated pipeline maintenance
- Pipeline pigging with liquid or membrane nitrogen
- New pipeline commissioning (liquid or membrane N<sub>2</sub>)
- Pipeline decommissioning (liquid or membrane N<sub>2</sub>)
- Nitrogen purging of gas plant lines and pipelines
- Pipeline cleaning with nitrogen
- Filter vessel purging with nitrogen

## UPSTREAM/OFFSHORE

Well-site applications include artificial lift for land-based wells with patented nitrogen recirculation units and patented Dry-PAK nitrogen membrane units, de-watering, reservoir pressure maintenance, well-jetting, well cleanouts, and nitro-lifting.

## MULTI-SERVICE VALUE

Nitrogen capabilities can be combined with these USA DeBusk services to increase project efficiency and reduce costs: Emission Controls, Inert Catalyst Services, Unit Decontamination, Chemical Cleaning, Tank Cleaning, Field Services, and Pipeline Integrity. Multi-service integration provides a single point of contact, reduces scheduling risks, and decreases indirect costs, while eliminating earned delays and reducing turnaround durations.

WE PROVIDE HIGH-VALUE SERVICES WITH INDUSTRY-BEST NITROGEN SOLUTIONS

