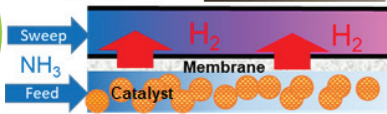




**Tunable
NH₃/H₂ Fuel**



Colorado School of Mines - August 9th, 2022

Product Data Sheet

The New Era, Spec Label, Yielder® NFuel Energy Zero Carbon.

GREEN HYDROGEN, H2, GREEN ANHYDROUS AMMONIA, FC NH3

Yielder® NFuel Energy.

Zero Carbon, Green Anhydrous Ammonia, FC

Guaranteed Analysis

Total British Thermal Units Per Ton NH₃.....15,755,727 BTU.

Total British Thermal Units Per Gallon NH₃ at 60 degrees F.....40,570 BTU.

Made from Wind, Solar, Water, and Air.

Yielder® NFuel Energy

Zero Carbon, Green Hydrogen. FC.

Guaranteed Analysis.

For Fuel Cells, H₂ has Less than .1 ppm NH₃ meeting Fuel Cell Quality.

Total British Thermal Units Per Gallon H₂ at 3,000 psi.....6,500 BTU.

Made from Wind, Solar, Water, Air and Zero Carbon Anhydrous Ammonia.

Yielder® NFuel Energy

Zero Carbon Kilowatt Hours Electrical Recharge

Guaranteed Analysis.

Local built EV battery charging KVA electricity is 100% sourced from Green Zero Carbon Ammonia..... 33.33 KWh per Kilogram H₂.

Yielder® NFuel is Zero Carbon. Why a New Era?

A steady price over 7 years, at zero carbon emission. Employment is local building Green Ammonia and Green Hydrogen at 2,000 plants.

DOT transport delivery is made from the local Green Play Plant. Composition is 82.42 percent Nitrogen, dull. 17.58 percent Hydrogen with 1 gallon H₂O added per 999 gallons of sharp NH₃ to delay Hydrogen embrittlement.

Pounds of Nitrogen per gallon at 60 degrees F. 4.2436 lbs. N.

Weight Per Gallon, dull, 5.15318 lbs. at 58 to 60 degrees F.

Weight Per Cubic Foot. 38.4 lbs./cu. ft.

Specific Gravity at 60 degrees F. .617 SG.

Viscosity Centipoise. .1184 cP @ 60 degrees F.

Gallons per US Short ton. 388.1099 gallons@60 degrees F.

Mass Flow readout accuracy in all temperature and pressure ranges.

+/-20 lbs. in 10,000 lbs. applied.

pH alkaline at 14.

Tank Pressure at 32 degrees F. 47.5 psi.

Tank Pressure at 60 degrees F. 92.5 psi.

Tank Pressure at 77 degrees F. 130 psi.

Tank Pressure at 100 degrees F. 197.2 psi.

Less Than 5 ppm oil.

New tanks have trace amounts of steel, and rouge. It is found in 100 mesh filters and magnetic strainers.

How To Use Yielder® NFuel

Non-Flammable, Inhalation hazard.

Authorized Trained Personnel and Hazmat driver's license required to handle and transport.

Googles and Gloves required at all transfers and field use.

DOT Number 1005.

Can be controlled and mixed with air at 16% to 23% mix for burning.

Can be used to control plant and engine emissions in SCR, selective catalytic reaction.

Can be used for reciprocating engine power 2024.

Pressure Vessel delivery to pressure vessel storage, ASME Tanks required under the rule of 1544 and rule 3088.

ASME Pressure Vessel, 70,000 psi Steel Tanks are rated at 250 psi storage, tender and application.

ASME Interstate Transport Rated Steel Tanks are rated at 265 PSI for long distance transfer between states.

Hoses are designed for 350 psi operation pressure, Burst Pressure 1,750 psi.

Yielder® NFuel Energy. Zero Carbon BTU's from the wind and solar.

Binary Fueling NH₃ and H₂.

Can be used as a hydrogen source for fueling hydrogen engines.

Can be used as an Anhydrous Ammonia source for fueling ammonia engines.

Can be used for Building Heat, Grain Dryers, Cement Kilns, Asphalt Plants, Rotary Kilns, Ethanol and Biodiesel plants as a zero carbon heat source.

Kilograms H₂ per Ton NH₃ delivered. 160 Kilograms H₂ /Short Ton.

British Thermal Units (BTU) at 60 degrees F per ton of NH₃: 15,755,727 BTU.

Gallons NH₃ per Ton at 60 degrees F: 388.3495 gallons.

Pounds of H₂ in a green zero carbon ton of NH₃: 352 pounds of H₂.

Green Ammonia Zero Carbon BTU per gallon of NH₃ at 60 degrees F: 40,570 BTU.

Standard ASME 250 psi rated tanks. Meets all current codes at the state fire marshals office.

Code Welders note: Infrastructure, Insurance and tank repairs are covered by the National Board of Review and Hartford Steam and Boiler Insurance Co.

Code Welders note: Lowest storage, transportation and plant construction cost as zero carbon fueling with either NH₃ or H₂.

Crackers are used to deliver hydrogen to the hydrogen engines built by major firms in Japan, USA and Europe.

Crackers are not required with Ammonia fueled engines built in Japan, USA and Europe.

Hydrogen Engine Launch Caterpillar.

May 31, 2022 Cat G3516H Demonstration project CHP 1540 kVA

Special Note.

At one ton Fossil ammonia built from Steam Methane Reformation uses 33,575,000 million BTU of natural gas, \$40 to \$80 of coal fired electricity and 1.7 tons of CO₂ lost at the plant. The oilfield is other part of the factoid of another 33% loss.

The actual CO₂ emission at fossil natural gas ammonia is 2.2 tons. The calculation includes the mining and exploration loss of Methane, CO₂ combined. Coal Methane based Ammonia with Steam Methane Reformation is 4.4 tons of CO₂ without the mining loss of coal.

China has 83 fossil ammonia plants of which 64 are coal fired. They now produce 40% of the all the ammonia in the world.

Nitrous Oxide loss comes from agricultural tillage application of all nitrogen sources. Mostly second and third nitrogen products such as Urea, UAN and URAN) produce 62.5% of the nitrous oxide emission that comes from agriculture.

*Fungible Certificate