

Global PYR13-TFSI Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global PYR13-TFSI market size is expected to reach \$ 12.29 million by 2032, rising at a market growth of 9.6% CAGR during the forecast period (2026-2032).

N-Methyl-N-propylpyrrolidinium bis(trifluoromethanesulfonyl)imide, commonly abbreviated as [PYR13][TFSI] or Pyr13TFSI, is a hydrophobic room-temperature ionic liquid consisting of a 1-methyl-1-propylpyrrolidinium cation and a bis(trifluoromethylsulfonyl)imide anion. It is used as a high-stability non-aqueous ionic liquid for lithium batteries, lithium-metal batteries, polymer electrolytes, gel electrolytes, supercapacitors, electrodeposition, electrochemical-interface studies and materials R&D. Reviews on pyrrolidinium ionic-liquid electrolytes describe this family as attractive for Li-based energy storage because of favorable thermal, electrochemical and safety-related properties.

N-Methyl-N-propylpyrrolidinium bis(trifluoromethanesulfonyl)imide, commonly abbreviated as PYR13-TFSI, should be analyzed as a high-purity pyrrolidinium TFSI ionic liquid, not as a generic organic solvent, lithium salt, total ionic-liquid market, or downstream battery-electrolyte market. Its value comes from the combination of a pyrrolidinium cation and a TFSI anion, which provides low volatility, thermal stability, a wide electrochemical window and good stability in non-aqueous electrochemical systems.

From an application perspective, PYR13-TFSI can be grouped into six major areas: lithium battery electrolytes, solid-state and gel electrolytes, non-lithium energy-storage electrolytes, electrochemistry and electrodeposition, functional solvents and separation/catalysis, and functional fluids and research uses. Among these, lithium batteries and solid-state or gel polymer electrolytes offer the strongest

commercialization potential, especially in safer, high-voltage, lithium-metal and polymer-electrolyte systems. Supercapacitors, sodium batteries and multivalent batteries are still more research- and validation-driven.

From a technical standpoint, the key value of PYR13-TFSI is not simply ionic conductivity. Its advantage lies in balancing non-volatility, thermal stability and a wide electrochemical stability window. It can be combined with LiTFSI, LiFSI, polymer matrices or other ionic liquids to improve electrolyte safety, interfacial stability and ion transport in gel or quasi-solid systems. However, high viscosity, limited low-temperature performance, relatively low lithium-ion transference and the cost of fluorinated TFSI chemistry restrict its use mainly to high-value R&D, pilot and specialty electrolyte applications.

From a specification standpoint, competition is driven by purity, moisture, residual halides, metal impurities, color, batch consistency, conductivity, viscosity and electrochemical window. For battery-grade or electrochemical-grade materials, main assay alone is not sufficient. Buyers also need to evaluate Karl Fischer moisture, chloride/bromide/iodide residues, sodium/potassium/iron/nickel impurities and inert packaging conditions. High-end customers usually treat PYR13-TFSI as an electrochemical or electrolyte material rather than a standard laboratory reagent.

Overall, PYR13-TFSI remains a low-volume, high-value specialty ionic liquid mainly used in R&D and pilot-stage applications. Its growth depends on progress in lithium-metal batteries, quasi-solid batteries, gel polymer electrolytes, safer electrolytes and high-voltage supercapacitors. Key constraints include cost, viscosity, low-temperature performance, toxicology and regulatory requirements, recycling, and long customer qualification cycles.

This report studies the global PYR13-TFSI production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for PYR13-TFSI and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of PYR13-TFSI that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global PYR13-TFSI total production and demand, 2021-2032, (Tons)
Global PYR13-TFSI total production value, 2021-2032, (USD Million)
Global PYR13-TFSI production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Tons), (based on production site)
Global PYR13-TFSI consumption by region & country, CAGR, 2021-2032 & (Tons)
U.S. VS China: PYR13-TFSI domestic production, consumption, key domestic manufacturers and share
Global PYR13-TFSI production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Tons)
Global PYR13-TFSI production by Monomer Structure, production, value, CAGR, 2021-2032, (USD Million) & (Tons)
Global PYR13-TFSI production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Tons)

This report profiles key players in the global PYR13-TFSI market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Mitsubishi Gas Chemical Company, Inc., Arxada, Huntsman Corporation, Nanjing Kinglyuan Pharmaceutical Chemical Co., Ltd., HighChem Co., Ltd., Vastwell Material Development Co., Ltd., etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World PYR13-TFSI market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (Tons) and average price (US\$/Ton) by manufacturer, by Monomer Structure, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global PYR13-TFSI Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global PYR13-TFSI Market, Segmentation by Monomer Structure:

Bisphenol A Cyanate Ester

Bisphenol E Cyanate Ester

Bisphenol M / F / Fluorinated Cyanates

Phenolic Novolac Cyanate Ester

Global PYR13-TFSI Market, Segmentation by Purity:

97% to

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