

Global PYR13-TFSI Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global PYR13-TFSI market size was valued at US\$ 6.38 million in 2025 and is forecast to a readjusted size of US\$ 12.29 million by 2032 with a CAGR of 9.6% during review period.

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 is a detailed and comprehensive analysis for global PYR13-TFSI market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Monomer Structure and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global PYR13-TFSI market size and forecasts, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/Ton), 2021-2032

Global PYR13-TFSI market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/Ton), 2021-2032

Global PYR13-TFSI market size and forecasts, by Monomer Structure and by Application, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/Ton), 2021-2032

Global PYR13-TFSI market shares of main players, shipments in revenue (\$ Million), sales quantity (Tons), and ASP (US\$/Ton), 2021-2026

The Primary Objectives in This Report Are:

- To determine the size of the total market opportunity of global and key countries

- To assess the growth potential for PYR13-TFSI

- To forecast future growth in each product and end-use market

- To assess competitive factors affecting the marketplace

This report profiles key players in the global PYR13-TFSI market based on the following parameters - company overview, sales quantity, revenue, 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.

Market Segmentation

PYR13-TFSI market is split by Monomer Structure and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts

for consumption value by Monomer Structure, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Monomer Structure

Bisphenol A Cyanate Ester

Bisphenol E Cyanate Ester

Bisphenol M / F / Fluorinated Cyanates

Phenolic Novolac Cyanate Ester

Market segment by Purity

97% to

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