



I-SAN

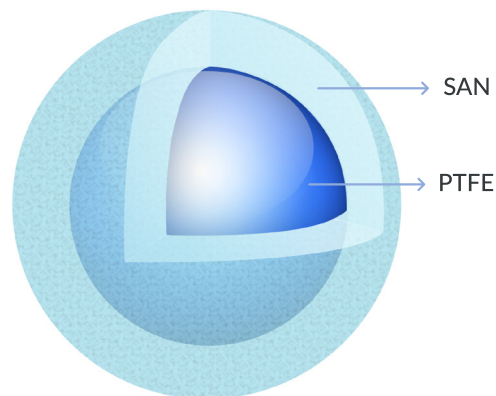
SAN Encapsulated PTFE

GREEN
CHEMISTRY
ADDING VALUE

EXPANDING FLUOROPOLYMER HORIZONS

Chemistry

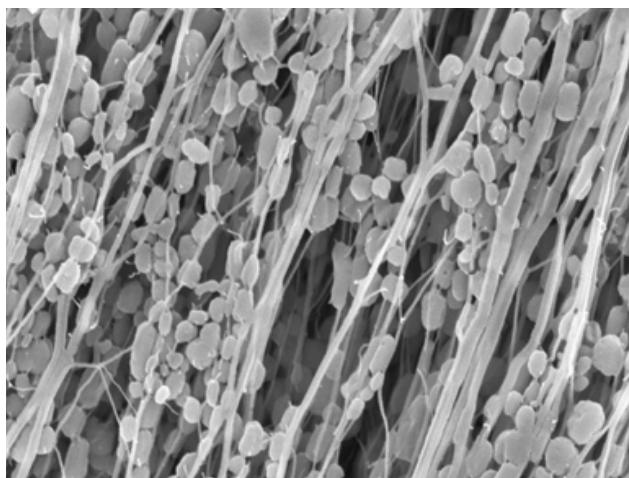
PTFE is used as an anti-dripping additive in the manufacturing of flame-retardant thermoplastics. For this requirement, a high molecular weight emulsion polymerized PTFE provides the best performance. Such PTFE typically has poor flow characteristics, which result in poor dispersibility in the polymer matrix. Use of high shear forces, to improve the mixing, will lead to pre-mature fibrillation of the PTFE powder which results in low performance. To improve the handling and the dispersibility of PTFE in polymeric matrixes, the PTFE particles are encapsulated by a shell of Styrene-acrylonitrile (SAN) polymer. This SAN shell is formed by in-situ polymerization of Styrene and Acrylonitrile monomers in the presence of PTFE particles, produced via emulsion polymerization. The product is a SAN encapsulated PTFE polymer particle, called I-SAN. The encapsulation of PTFE with SAN has two primary benefits: it minimizes the pre-mature fibrillation of the PTFE particles during the mixing process and the resulting free flowing I-SAN has good dispersibility in various polymer resins.



Representational image

Anti – Dripping Mechanism

During compounding, shear is applied to PTFE particles present in the polymer matrix. Due to this shear, high molecular weight PTFE particles form a microscopic node and fibril structure (50 nm fibril thickness). This structure forms a network in the matrix which supports char formation during burning. Emulsion-polymerized PTFE is used for this application as suspension-polymerized PTFE forms significantly less nodes and fibrils. As a result, the quantity of emulsion PTFE required to provide anti-dripping characteristics is much less than with suspension PTFE.



Grade	Dispersibility	Fibrillation
I-SAN	••••	••••
Emulsion PTFE	•	•••
Suspension PTFE	••	••

Key features of I-SAN

- PFOA Free
- Uniform granules
- Free flowing powder
- Excellent dispersibility in polymer resins and compounds
- Excellent anti-drip properties
- High Fibrillation

End-uses

INOLUB™ I-SAN is used as drip suppressant in flame retardant polymers for housings of business machines and household electrical appliances, as well as electronic components.



Properties of I-SAN

Grade	Units	I-SAN50	I-SAN60
PROPERTIES			
PTFE	wt.%	50	60
BD	g/l	450	450
D50	µm	500	500
MP	°C	342	342
Flowability	g/10 min.	250	250
COMPLIANCE			
177.1550	Food Contact Surfaces	✓	✓
EC10/2011	Food Contact	✓	✓

Application and dosing

I-SAN can be used in many polymer compounds, such as PC, PC/ABS, PPO, PBT, PA, ABS, HIPS & PP, with typical dosing between 0.1% and 0.5% depending on FR requirement. These compounds can be used to produce molded or extruded articles or as a component of other industrial products. I-SAN enhances the ability of the polymer compound to comply with UL-94 V0.

Regulatory

I-SAN does not contain PFOA and PFOS, intentionally or unintentionally and complies with REACH regulations for POPs as per (EU) 2019/1021 & EU 2020/784.

Sustainability

GFL is committed to social, environmental and economic sustainability through responsible processes, practices and greener initiatives not only in our products but also in our principles. The Company measures the impact of its business operations through 3 key pillars of Sustainability, namely People, Planet & Profit.



ABOUT the Company

An ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 and SA 8000:2014 certified organization, GFL is a leading producer of Fluoropolymers, Fluorospecialties, Refrigerants and Chemicals for applications in varied industries. GFL derives its strength from expertise in fluorine chemistry, vertical integration and strong R&D, enabling it to provide one of the best quality products by meeting the regulatory compliances, to our clientele globally.

GFL is committed to 'Green Chemistry' and offers environment-friendly products using sustainable technologies. Our extensive research and development in the field of Fluoropolymers enable us to comply with global compliances and regulations and facilitate our customers to choose greener products manufactured by sustainable technologies.

For more information about our company and I-SAN, please refer: www.inolub.com

Value through green chemistry

CORPORATE HQ
GUJARAT FLUORO CHEMICALS LIMITED

INOX TOWER, 17, SECTOR-16A,
NOIDA-201301 U.P, INDIA
+91 120 6149600
www.gfl.co.in

EMEA
GUJARAT FLUORO CHEMICALS GMBH

14th FLOOR, REGUS CENTRE WATERMARK,
ÜBERSEEALLEE 10, 20457, HAMBURG, GERMANY
+49 40 808074667/668
www.gfl-europe.com

AMERICAS
GFL AMERICAS LLC

1212 CORPORATE DR.,
SUITE-540, IRVING, TX 75038, USA
+1 512 4467700
www.gflamericas.com



MANUFACTURING SITE

12/A, GIDC DAHEJ INDUSTRIAL ESTATE,
TEHSIL VAGRA, DISTT. BHARUCH-392230,
GUJARAT, INDIA
+91 26416 18003
www.gfl.co.in