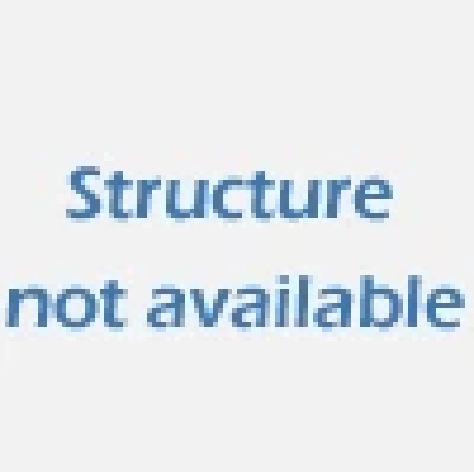
Soap Noodle

Basic Information



Soap Noodle Structure

Product Type	**: Semi-Finished Soap Base (Sodium Fatty Acid Salts)**
CAS Number	**: 143-07-7 (palm-based soap)**
HS Code	**: 3401.20.20**
TFM (Total Fatty Matter)	**: 78–80% (toilet grade); 60–72% (laundry grade)**
Fatty Acid Source	**: RBD Palm Oil / Palm Stearin / Palm Kernel Oil (Halal certified)**
Synonyms	**: Soap base, Toilet soap noodles, Laundry soap base, Fatty acid sodium salt noodles**
Grade	**: Toilet Grade (TFM 78–80%) / Laundry Grade (TFM 60–72%)**

Description

Soap noodles are semi-finished soap base materials produced from the saponification or neutralization of fatty acids (or fat splitting) with sodium hydroxide (NaOH). They serve as the primary raw material for manufacturing bar soaps, laundry soaps, and toilet soaps.
Soap noodles are predominantly composed of sodium salts of palmitic (C16) and stearic (C18) fatty acids, derived primarily from palm oil or tallow. The noodle format facilitates easy melting, blending with additives, and extrusion into final bar forms. Different grades of soap noodles are produced to suit specific applications: toilet soap noodles with higher TFM for personal care, and laundry soap noodles with lower TFM for cleaning applications.

Technical Specifications

Appearance	**White to off-white cylindrical pellets or noodle-shaped pieces**
Odor	**Mild, soapy fatty odor**
TFM (Total Fatty Matter, ASTM D460)	**Min. 78% (toilet grade)**
Free Caustic Alkali (NaOH)	**Max. 0.1%**
Free Fatty Acid (FFA)	**Max. 0.5%**
Moisture Content	**Approx. 12–14%**
NaCl (Salt)	**Max. 0.3% (toilet grade); up to 1.5% (laundry grade)**
Color (Lovibond, 1" cell)	**Max. 5 Yellow, 0.5 Red**
Unsaponifiable Matter	**Max. 0.5%**
Fatty Acid Composition	**Primarily C16:0 (palmitic) and C18:0 (stearic) from palm oil**
Hardness (Shore A)	**Approx. 20–40 (at 25 °C)**
Flash Point	**>200 °C**
Softening Temperature	**Approx. 50–60 °C**

Uses and Manufacturing

Uses

Soap noodles are the primary raw material used in the manufacture of toilet soaps, laundry bars, beauty bars, baby soaps, medicated soaps, hotel amenity soaps, and specialty soap products. They provide the base fatty matter and cleansing platform upon which the soap manufacturer builds the final product.

In toilet soap manufacturing, high-TFM noodles (78–80%) are blended with a range of additives in sigma blade mixers or amalgamators: fragrance oils (0.5–3%), colorants, titanium dioxide (whitening), coconut oil fatty acid sodium salt (for lather improvement), glycerine, skin care actives (moisturizers, vitamin E, aloe vera), and antibacterial agents (triclosan, zinc pyrithione). The blend is then refined through milling and plodding, extruded in a vacuum plodder, cut to size, and stamped or shaped.

Laundry soap bars use lower-TFM noodles (60–72%) and are formulated with fillers (sodium silicate, sodium carbonate, STPP), linear alkylbenzene sulfonate (LAS), and optical brighteners to produce economical, high-performance laundry cleaning bars.

Specialty soap types produced from noodles include transparent soaps (using ethanol/glycerine as transparency agents), cream soaps (with high water content), syndet bars (with added synthetic surfactants), combi bars (soap + syndet combination), and medicated soaps. Palm-based noodles are preferred globally because they are Halal-certified, vegan (when certified palm-based without tallow), and have excellent lather and hardness properties.

Methods of Manufacturing

Soap noodles are manufactured by one of two main processes: saponification (in-situ reaction of oils/fats with NaOH) or neutralization (reaction of pre-split fatty acids with NaOH).

In the continuous saponification process, RBD palm oil (or a blend of palm oil, palm stearin, and coconut oil for improved lather) is continuously saponified with a NaOH solution in a continuous reactor at elevated temperature. The neat soap mass is then treated to remove glycerine (washing with brine), and the soap is dried to the target moisture content (12–14%) using vacuum spray drying or thin-film evaporation.

In the fatty acid neutralization process, palm oil fatty acids (from fat splitting) are neutralized with NaOH in a continuous neutralizer, and the resulting soap mass is dried and formed into noodles by extrusion through a perforated die plate.

Quality control includes measurement of TFM (ASTM D460 or ISO 684), free caustic alkali, FFA, NaCl, moisture, color, and absence of impurities. Halal certification is maintained by exclusively using palm-based raw materials and Halal-certified process chemicals.

Hazard Identification

Hazard Summary

Low toxicity. Mild alkalinity may cause skin irritation on prolonged contact. Dust may irritate respiratory passages.

Fire Hazard

Combustible solid at elevated temperatures.

Skin, Eye & Respiratory Irritations

Prolonged contact may cause mild skin dryness or irritation due to alkaline nature.

Safety and First Aid

Physical Dangers

Combustible solid at elevated temperatures.

Skin First Aid

Rinse thoroughly with water.

Eye First Aid

Flush with water immediately for 15 minutes.

Ingestion First Aid

Rinse mouth with water. Seek medical advice.

Fire Fighting Procedures

Use water spray, foam, or dry chemical.

Handling and Storage

Nonfire Spill Response

Small spill: Sweep or vacuum up noodles/pellets. Avoid generating dust from broken noodles. Collect in labeled containers for recovery or disposal.
Large spill: Collect mechanically. Wet noodles become very slippery — warn personnel. Do not wash large quantities of soap into drains at once (high BOD, foaming in waterways). Collect and dispose of in compliance with local regulations.

Safe Storage

Store in a cool, dry, well-ventilated warehouse in original sealed packaging. Protect from moisture — soap noodles are hygroscopic and will absorb moisture, affecting TFM and processing properties. Keep away from direct sunlight and heat sources (>40 °C causes softening). Do not store near strong acids or oxidizing agents. Avoid stacking packaging too high to prevent compression deformation of noodles.

Storage Conditions

Recommended storage temperature: 15–30 °C. Avoid storage above 35 °C. Relative humidity: <65% RH. Shelf life: 12–18 months in original sealed packaging under recommended conditions. Suitable packaging: multi-wall paper bags with PE liner, or HDPE-lined woven PP bags. Store on pallets to avoid ground moisture contact. First-in, first-out (FIFO) rotation recommended.