

FUEL TREATMENT SOLUTIONS

Profile of Pennar

Pennar Industries Limited's Enviro Business Unit, formerly Pennar Chemical Limited, entered the Indian market in 1992 and has since emerged as a pioneer in specialty chemicals for solid and liquid fuel additives and water applications. The unit offers advanced specialty chemicals and O&M solutions for clear and wastewater treatment, and supplies premium, high-technology fuel additives tailored to specific fuel characteristics. Pennar is the authorized manufacturer and marketer of Elf Fuel Oil Additives through a technical collaboration with TOTAL, France, supported by a state-of-the-art manufacturing facility in Hyderabad and a pan-India sales and service network.

Additives for Heavy Fuel Oils

A specially formulated compound in solution in an aromatic solvent which is readily soluble in fuel oil and which acts as a combustion catalyst by increasing the speed of oxidation of unburnt hydrocarbons during the process of heavy fuel oil combustion.

Combustion Improver Catalyst is a flexible way to optimize the use of heavy fuel oils and exhibits the following main properties:

- Significantly reduces the amount of soot and unburnt hydrocarbons (more than 50%) formed during the combustion of heavy fuel oils
- Allows reducing the excess air used during the combustion process
- Improves the flame homogeneity and allows to achieve a more stable yield of combustion
- Reduces deposits on heat transfer surfaces and consequently allows to achieve a more efficient heat transfer in the convection zone
- Therefore, reduction in fuel consumption is achieved.

Environment

Reduces the unburnt solids by at least 50%
Decreases emission of Black smoke & Co. Gas
Reduces NOx by at least 30%
Satisfies environmental considerations

Handling and Blending

Combustion Improver Catalyst must be stored and handled at ambient temperatures not lower than minus 3°C. Carbon Steel, stainless steel, polyethylene, polypropylene or Teflon may be used for construction of storage.
The recommended blending method is either by direct injection in the fuel line by a dosing pump or by addition into the fuel storage tank or in the tanker before decantation of the fuel.

The company has diversified its product range into few different segments.

- Additives for Heavy Fuels
- Storage Stability Additives
- Additives for Light Oils
- Additives for Solid Fuels (Coal, Lignite, Pet coke etc.)
- Additives for Agro Fuels (Bagasse, Briquette & Agro Fuels etc.)
- Industrial Cleaners & Degreasers.



Combustion Catalyst-cum-Stability Additive:

High Performance Multifunctional additive to solve Combustion and Sludge formation problems in fuel oil. $\text{Asphaltene} + \text{O}_2 \text{C} + \text{CO} + \text{CO}_2 + \text{H}_2\text{O}$.

Because of the partial combustion, CO and C are not burnt completely. This additive makes the Asphaltenes break down and helps the molecules to burn easily to give more energy. Normally this additive is dosed @ 500 to 750 ppm. Blending should be done in main tanks or storage tanks or tank trucks. This is a blend of performance enhancers, and its functions are given below:

Disintegrates the existing sludge molecules into fine Asphaltene molecules.

Avoids formation of sludge and keeps the Asphaltenes in well dispersed state.

Combustion Catalyst breaks down the Asphaltenes into smaller molecules, helps these broken molecules to burn by catalyzing the tough step of carbon monoxide formation, thus improving the heavy fuel oil to burn better, release more heat and as a result, saves fuel.

Benefits of Using Combustion Catalyst:

Chemical:

- Increases speed of combustion of oil.
- Accelerates combustion of unburnt hydrocarbons

Mechanical:

- Reduces excess air requirement
- Reduces heat loss through heat transfer
- Enhances heat transfer efficiency

Economic Benefits:

- Effects 3-4% fuel savings, and enhance life of equipment
- Sludge converts into good oil. Saves time, effort, and labour by avoiding tank cleaning

Environmental Benefits:

- Reduces smoke, soot and particulate matter in flue gas
- Reduces NOx by at least 30%; avoids sludge formation and hence sludge handling difficulties.

Combustion Catalyst-cum-Ash Modifier Additive:

Added to the function of combustion improver, it reduces deposits in the high temperature zones of the thermic fluid heater / boiler so as to make the thermic fluid heater or the boiler operate on the peak capacity all the times. Avoids corrosion of heat exchanger tubes and premature failure of high temperature surfaces.

Storage Stability Additive

Proprietary products, made up of surfactants and dispersing compounds and is a patented blend of totally organic copolymers, dissolved in an aromatic solvent. It improves the behavior of heavy fuels in storage and in operation by breaking up the heavy molecules into smaller ones.

Advantage

- Improves the lubricity properties of the ATF / DIESEL / KEROSENE / C9 fuel
- Reduces the wear of the injection pumps even with low Sulphur content ATF / DIESEL / KEROSENE / C9 fuel
- Protects the fuel system against corrosion
- Improves engine durability and reduces maintenance costs.

Additives for Light Oils

- Lubricity Improver for Kerosene, Diesel & C9 Fuel
- Lubricity Improver for Kerosene, Diesel & C9 Fuel Is a fuel additive specially designed for improving the lubricity properties of Diesel / Kerosene / C9 fuels meeting WSD requirements as per international standards.
- This has a capacity to improve lubricity properties of lighter fuels.
- Reduces the wear of injection in pumps. Protects the fuel system from corrosion. Especially for the light fuels with low sulfur content. Recommended amount of treatment is 50 to 200 ppm.

Advantage

- Improves the lubricity properties of the ATF / DIESEL / KEROSENE / C9 fuel
- Reduces the wear of the injection pumps even with low Sulphur content ATF / DIESEL / KEROSENE / C9 fuel
- Protects the fuel system against corrosion
- Improves engine durability and reduces maintenance costs.

Characteristics

- Properties Typical
- Appearance Amber liquid
- Density at 15°C, kg/cu.m about 900 – 940
- Flash Point, °C > 55
- Pour Point, °C < li – 10
- Kinematic viscosity at 20°C, cst < li 20.

Cetane Improver for Diesel fuels

Is a specially developed additive for raising the Cetane Number of diesel oils and middle distillate fuels. It is an alkyl nitrate chemical for better combustion of diesel oils with properties as:

Better self-ignition ability of diesel oil, reducing of engine noise, Better efficiency of engines.

Recommended level of treating is about 1500ppm for special LDO and Cetane number below 38.

Cetane Improver for Diesel fuels is a specially designed additive for fuels with raising Cetane number, of diesel oils at an optimum cost, with technical specifications to:

- Refineries
- Diesel engine builders
- Meet administrative requirements of various countries.

Advantage

- Better self-ignition ability of diesel oil specially while the engine is starting, better cleanliness of the injectors, less vapour and unburnt by the emissions, and lower diesel oil consumption.
- Decreasing of the engine noise especially for cold engines at low rpm.
- Better efficiency of engines with longer durability and reduced maintenance costs
- Improved vehicle drivability and Driver's comfort.

Characteristics

- Properties Typical
- Appearance Colorless to pale yellow liquid
- Specific Gravity at 15°C 964 – 970
- Flash Point, °C > 62
- Pour Point, °C < li – 21
- Kinematic viscosity at 20°C, cst <=1.5.

SKO Additive

SKO Additive is a multifunctional package which up-grades kerosene and jet fuel to feed Diesel engines on land vehicles.

Advantage

- Raises the Cetane index up to 4 points for improving the ignition and the combustion of the fuel
- Gives lubricity properties in the jet fuel which is a less viscous and more 'dry' fuel than the diesel oil: injection pumps must be protected against the mechanical wear.
- Stays non-sensitive to condensed water and settled water in the storage tanks and tanks on board the vehicles.

Additives for Solid Fuels

Pennar CE 05 – Elimination of unburnt carbon

It induces combustion of the carbon deposits located in those zones where the temperature is too low for combustion to occur efficiently.

Pennar CE 05

The product reduces carbon deposits, prevents smuts, improves combustion efficiency, and prevents local overheating and chimney fires. Used mainly for Boilers.

Pennar CE 05 includes combustion of carbon deposits located in those zones where the temperature is too low for combustion to occur efficiently..

Applications of Pennar CE 05

- Central Heating Boilers
- Industry Boilers
- Recovery Boilers
- Diesel Engine exhaust systems.

Advantages

- Reduces Carbon deposits on heat exchanger surfaces
- Prevents Smuts
- Improves combustion efficiency
- Prevents local overheating and chimney fires
- Applied while boiler is operational helping in online cleaning



Pennar Coal Additives

Pennar has developed Combustion Improver Additives for Coal burning units. It is a powder additive designed especially for coal fired units to reduce unburnt carbon in both fly ash / bottom ash and reduces soot emission, while maintaining the boiler in good condition.

Additives helps in prevention of fouling on the convection zone. Reduces over all cleaning of the surfaces in the boiler. It's a continuously added to the system at recommended dosages to observe best results.

These Additives are suitable for Boilers, Furnaces, Thermic Fluid Heaters, and Kilns etc.

We have different Additives to address Combustion issues and Corrosion Issues.

The improvement in Combustion, which in turn gives fuel savings, can be measured by two ways.

- SFR Method (Steam to Fuel Ratio)
- LOI Method (Loss on Ignition)

Advantages

- Reduce unburnt carbon in fly ash and bottom ash.
- Help to recover heat by enhancing fuel combustion.
- Reduces back-end corrosion.
- Reduces fouling of convection sections



Customers – Pennar Industries

Pennar has rich experience of working across industries as given below:

Industries:

- Steel
- Automobiles
- Chemical
- Power Plants
- Oil & Gas
- Metal Industries
- Electronics

Government & Public Institutions:

- Engineering Division
- Local Municipalities
- Public Authority Places
- Metro Municipal Boards

Food and Hospitality:

- Hotels
- FMCG
- Brewery & Distillery
- Food & Beverage

Medium and Commercial Establishments:

- Pharmaceutical
- Paper
- Textile
- Leather
- Fertilizer
- T/ITES Parks
- Commercial Office Setups
- Construction



Pennar Additives for Agro Fuels

Pennar Additives for Agro based Fuels is Additive used for burning units where Agro fuels are used (Briquette, Bagasse etc.,). It is a powder additive designed especially for heating/ burning units where Agro fuels are used. It helps to reduce unburnt carbon in both fly ash / bottom ash and reduces soot emission, while maintaining the boiler in good condition.

Combustion Booster for Agro based fuels & Corrosion inhibitors for Agro based fuels

It improves burning of Agro-based fuels like Briquettes, Bagasse, Husk, Jute Caddy etc. Usage of Additives Minimizes soot emissions.

Industrial Cleaners & Degreaser Products

It penetrates and takes out grease, oils, dirt and hard to clean spots easily from all floors, metals, machines and equipment very effectively. It is ideal for industrial machine cleaning and general maintenance cleaning.

Industrial Perfect Clean

Industrial degreaser and cleaner delivers effective results without the use of any harsh chemicals like caustics, acids, enzymes or solvents, unlike other petroleum based or caustic acid based cleaner. It eliminates worker safety problems and hazards associated with storage or disposal.

Features

- No volatile or toxic vapors
- Hard and soft water soluble
- 100% biodegradable
- Nonflammable
- Effective as solvents with personnel, environmental and regulatory concerns.

Features

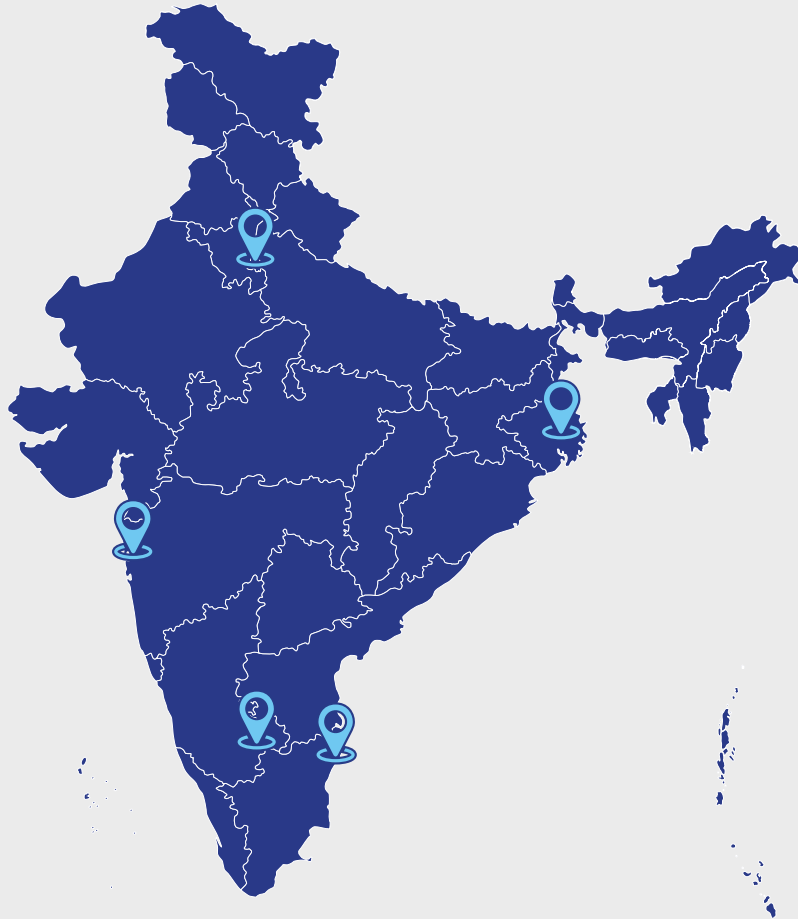
- Tough on Grease
- EPA complaint with no VOC's
- Contains no hazardous chemicals
- No fumes or harmful vapors
- Water soluble and easy to store

Markets We Serve

- ✓ Rice Mill
- ✓ Tyre Industry
- ✓ Engineering
- ✓ Hospitality Segment
- ✓ Fertilizers
- ✓ Indian Railway
- ✓ Power Plants
- ✓ Petrochemicals
- ✓ Chemicals
- ✓ Refinery
- ✓ Pharma
- ✓ Automobiles
- ✓ Institutional Segment
- ✓ Food & Dairy



Delivering Sustainable
Performance Chemicals



Our Branches

- 📍 Mumbai
- 📍 Kolkata
- 📍 Chennai
- 📍 Delhi
- 📍 Bangalore.

Manufactured & Marketed by:

Pennar Industries Ltd.
(ENVIRO BUSINESS UNIT)



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