

5- Highly active nano catalysts play a pivotal role during the cold start phase of automotive catalytic converters, facilitated by natural gas catalytic combustion technology:

Catalytic combustion stands out as one of the most efficient methodologies to eliminate methane, owing to its efficacy at low operational temperatures.

Simultaneously, the application of this technology has experienced a notable upsurge in recent years due to its manifold practical applications, encompassing electricity generation and the curbing of environmental pollutants. This reaction's potential has demonstrated significant impacts, spanning from energy production in gas turbine combustion chambers to pollution abatement in vehicle catalytic converters. In contrast to the conventional combustion process necessitating temperatures of around 1400 for energy generation, the adoption of heterogeneous catalysts presents a substantial reduction in reaction temperatures.

This reduction not only slashes energy consumption but also mitigates the generation of pollutants like NOx compounds.



6- Air filtration in poultry houses:

Chickens are raised in buildings with a controlled environment, to increase their growth and production in this environment. A ventilation system plays an important role in controlling this environment. Understanding and knowing the application of ventilation system principles helps, which helps to manage it better, more efficiently and economically, increases production and reduced cost usually increases profitability. A ventilation system must circulate air between the inside and outside of the building. It is also expected that it will create a proper uniformity in the environment and the building will be economically ventilated throughout the year. The air conditioning system brings fresh air from the outside into the hall, while it also removes the hot and humid air inside. Air movement removes heat, humidity and carbon dioxide produced by the bird from the building. This air that flows between inside and outside the hall is an important part of the ventilation system. The amount or rate of air movement required must be controlled, so that the environment remains in an economically favorable condition throughout the year.

- Using a simple and inexpensive system.
- Application of nano photocatalysis technology of HEPA (anti-bacterial) filters and...
- Transfer and distribution of air inside the hall from a central and controllable air conditioner.

Company capabilities:

- Production of nano materials.
- This company brings extensive design, technical, and engineering expertise to the realm of manufacturing essential equipment required to fulfill the diverse requirements of researchers and manufacturers in the nano domain. This encompasses various aspects such as process design, PFD, P&ID, ITP, MSP, and more.
- Provision of expert personnel.
- There exists the potential for robust and dynamic scientific and industrial collaboration with affiliated companies and centers, facilitating research endeavors within the nano domain. This company provides a conducive platform, spanning various industries, to foster such interactions.
- Acceptance and management of projects related to the mentioned areas (ability and expertise) from applicants active in these areas.



Knowledge-based Company and Nanoscale Research and Development of Environmental Technologies



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Information :

Company Name: Kimiagaran Sanat Amirkabir Knowledge Based and Nanoscale Company.

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Activity Description: The knowledge-based and nanoscale chemical company, Kimiagaran Sanat Amirkabir, operates within the realm of consulting, design, construction, and implementation of air filtration systems for both industrial and healthcare environments. By placing a strong emphasis on extensive research in recent years, this company has successfully amalgamated consultations with industry managers, distinguished university professors, and a decade of industrial expertise from its specialists. This synergy has enabled the company to position itself as a pioneer in the knowledge sector, specializing in nanoscale air filtration solutions for industrial and healthcare settings in Iran. The company takes pride in offering comprehensive design and construction services for filtration systems aimed at eliminating diverse environmental pollutants, including fumes, various types of dust, and gas vapors.

Products:

1- A nano adsorbent designed to eliminate the noxious odor of (H₂S) from treatment plants, septic tanks, and industrial company emissions:

- One of the salient attributes of this exceptional product is its remarkable capability to effectively eradicate disagreeable odors, achieving an impressive 98 percent removal rate from both domestic and industrial exhaust emissions.
- Very low operating costs.
- Long lifetime of nano composite.
- Low electricity consumption cost.
- Low maintenance costs.
- Using different materials according to the concentration of pollution. (Steel or polyethylene).
- Lower price compared to European and American models.
- No need for consumables during a year.
- Intelligent monitoring system.



2- Nano octane gasoline booster:

- Increase of octane number up to 5 levels.
- Improving engine efficiency.
- Improving fuel performance.
- Reducing fuel consumption.
- Reducing environmental pollution.

3- Online H₂S and SO₂ gas detection sensor:

- To be installed in the exhaust fans of factories.
- Working temperature range: -5°C up to +500 °C
- Measurement range: 1 up to 100000 ppm.
- Selectivity: for H₂S, SO₂ gases in the presence of disturbing agents and pollutants and dust.
- High precision & accuracy.

4- Pneumatic Conveyor:

- Designed for the transportation of powdered materials, diverse fumes, and pollutants, as well as the storage of both conveyed materials and their corresponding packaging.
- Very low compressed air consumption.
- Prevention of adhesion and clogging within the pneumatic conveyor system attributed to the utilization of nano materials in both design and implementation.
- Transmission pipes without adhesion and wear.
- Ability to transfer materials horizontally and vertically.
- Ability to pack materials.
- Ability to upgrade to material weighing system by load cell.
- Fully intelligent system.
- Use of cheap and available valves with minimal wear and maintenance due to the special design of this system.

