

VOC and Low-concentration Contaminants Removal Technology

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⇒ Apparatus for effective removal of volatile organic compounds (VOCs) generated by evaporation of organic solvents or hydrocarbon fuels. Plasma-catalysis can remove VOCs without additional use of fuel

Client / Market

- Paint factory, petroleum-based fuel storage facility
- Businesses and manufacturing sites using organic solvent

Necessity of this Technology

- Low concentration VOC has a low calorific power, so it was removed through simple adsorption or incineration using a separate fuel.
- Simple adsorption method requires replacement of absorbent and regeneration process, and there is a risk of fire in the process of adsorption.
- Incineration method requires a separate fuel supply facility and emits secondary pollutants such as NOx.

Technical Differentiation

- This technology uses catalytic reaction assisted by plasma for oxidative removal in VOC without using separate fuel.
- The catalytic oxidation method does not discharge secondary by-products like NOx.

Excellence of Technology

- The capability to eliminate organic substances like benzene and toluene was verified.
- Can treat complex pollution with VOCs
- Using plasma reaction and catalytic oxidation, low temperature activation of catalyst can be induced.
- Can eliminate non-alkane hydrocarbon under 300 degrees Celsius
- Published the paper, Low temperature activation of CO removal by O3 assisted catalysis (Environmental Science & Technology 2014; 48 (24), 14543–14548

DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

Other



TECHNOLOGY READINESS LEVEL [TRL]

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| Research, basic explanation | Project concept or idea development | Technology idea verification | Prototype development | Trial product production/ evaluation in similar environment | Pilot field demonstration | Development and optimization of commercial model | Commercial product demonstration | Mass production and initial market launch |
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Pilot VOC Treatment Apparatus



Current Intellectual Property Right Status

PATENT

- Air Cleaning Device (KR1544387)
- Air Cleaning Device (KR1661678)
- Air Cleaning Device and Driving Method of the Same (KR1767159)
- Air Cleaning Device (KR1607645)