

PhotoCatalytic Oxidation - Environmental Purification Technology

Overview

The environmental pollution now becomes the global problem. More and more water and air is being polluted. How to purify the environment efficiently, becomes a hot point of science research. PCO (PhotoCatalytic Oxidation) technology is considered to be a potential high efficient environmental purification technology. In 1976, scientist found that the pollutant biphenyl and biphenyl oxide can be decomposed by photocatalyst in water. This discovery leads a new environmental purification research trend. The advantage of PCO technology is its deep purification reaction ability.

Even under room temperature, PCO technology can decompose the pollutant into harmless chemicals completely and rapidly. This "green" technology consumes light as power, and does not require other energy to work. Since PCO do not have re-pollution risk, it becomes a very promising next generation environmental purification technology.

For now, various researches show that PCO technology can purify organic pollutants such as alkylide, acyclic compound, fatty acid, olefin, benzene, aromatic carboxyl acid, dye, surfactant, disinfection agent, haloalkylide and inorganic metal ion. The following list shows some typical EPA listed pollutants which can be purified by PCO technology.

List of EPA priority controlled pollutants (PCO technology decomposable)

- | | | |
|------------------------|----------------------------|----------------------------------|
| 1,1,1-trichloroethane | chlorobenzaldehyde | amino nitroge |
| 1,2,4-pseudocumene | 1,3-dichloropropene | propanamide |
| acetone | 2-aminoanthraquinone | phenylic acid |
| diaminoazobenzene | butanal | dichloroaniline |
| 1,1,1-trichloroethane | ethyl perchloride | aminobiphenyl |
| 1,2-dibromoethane | 2,2,4-trimethylpentane | acroleic |
| acerophenone | chloroketol | pesticide |
| sumaresinol | caprolactam | dichlorodifluoromethane |
| ethylidene chloride | phenylog | chloraniline |
| 1,2-dichloroethane | omal | acrylonitrile |
| benzal chloride | chlorophenol | DDVP |
| chlorobenzoyl chloride | captan | acaricide |
| trichlorohydrin | chlorostyrene | chlordimeform |
| 2,4-dichlorophenol | 2,4,6-trinitrotoluene | aldrin |
| thiacetamide | carbitol carbon subsulfide | chlorobenzene |
| benzoperoxide | mtolunitril | ethyl thiother |
| dcetylenedichloride | fenclofenac | homohydroquinone |
| dinitrotoluene | 2-methylnaphthalene | aminobenzene |
| ethyl bromide | carbon tetrachloride | clobenfurol |
| benzanthracene | cumene | cyanmethine |
| 1,2-dichloropropane | methyltoluidine | nitrotyrosine |
| 2,4-tolylene | 2-nitropropane | anthracene |
| bromoform | oxythiamine | aldrine |
| cchromene | cyclohexane | dimethylformamide |
| dinitrotoluene | teraconic | accenaphthene |
| dinitrotoluene | xenol | antiparasitic |
| butyl acrylate | phenol | anodynnon heptane |
| benzoic | anone | acetaldehyde |
| 1,3-butadiene | dinitrotoluene | benzoyl |
| acetylaminofluorene | acraldehyde | chloroform |
| phenyl | phenanthrene | propaldehyde |
| phthalate | dibenzofuran | acetamino |
| benzene | | |
| chlorobutadiene | propoxur | propionyloxy |
| tetrachlorothane | stirofos | tetrahydrofuran |
| chlorothalonil | dimethyl sulfide | disolfoton |
| hexachlorobenzene | hexachlorobutadiene | ethyl perchloride |
| propene | fluorene | vinylphenyl acetate |
| sulfocarbamide | maleic acid | nitrosodiisopropylamine |
| dioctylphthalate | chlorofos | naphthylamine |
| diisocyanate | hexachloro-cyclopentadiene | nitrosotoluene |
| propanamidezan | formaldehyde | ethylene bromiide |
| methylbenzene | mancozeb | sodium alizarinsulfonate |
| detylphthalate | oil of sassafras | triglycylglycine |
| n-hexane | pentachloronitrobenzene | N-nitroso-piperidine |
| parathion | methyl isopropyl ether | ethylene chloride |
| toluene diisocyanate | cyanuramide | methylamine |
| endosulfan | butyl alcohol | nitrobenzene |
| 1,4\)-dihydroxybenzene | homo-hydroquinone | pentane |
| chloroxylenol | MTBE | ethylene nichloride |
| chlorodifluoromethane | carbinol | p-methoxyphenylalanine |
| epichlorohydrin | mancozeb | nitrofen |
| indenofluorene | carbonyl fluoride | octane |
| m-cresotyl | miecanyin | dimethyl benzene |
| trichloroethylene | paspertin | 3-amino-2,5-dichlorobenzoic acid |
| ethylaniline | phenylacrtic acid | glycerin |
| isophorone | phthalic anhydride | cyclic ketone |
| nitrosopyrrolidine | 2,2-dichlorodiethyl | picric acid |
| triethylamine | 2-hexanone | bromodichloromethane |
| ethene | terephthalate | butyl glycol |
| isopropyl ethylene | nitrosodiethylamine | o-methoxyaniline |
| phenylene-diamine | nitrobenzene | pentachlorophenol |
| trinitrophenol | abrodil | pentachlorodiphenyl |
| vinyl-ethyl alcohol | butyl mercaptan | monobutyl phthalate |
| malachite | nitrosopyrrolidine | o-nitroaniline |
| benzopyridine | N,N-dimethylaniline | ethyl peroxide |
| trimethyl phosphate | hexone | nitrosobutylamine |
| fluoranthene | polyurethane | PCB |
| malathion | nitrosodibutylamine | o-toludine |
| benzoquinone | naphthalene | |
| chloroacetic anhydride | nitrosulfamide | |