# Document details - Photocatalytic degradation of organic contaminants by g-C<sub>3</sub>N<sub>4</sub>/EPDM nanocomposite film: Viable, efficient and facile recoverable





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## Photocatalytic degradation of organic contaminants by g-$C_3N_4$/EPDM nanocomposite film: Viable, efficient and facile recoverable(Article)

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### Abstract

The original metal free graphitic carbon nitride/ethylene propylene diene monomer nanocomposite film (g-$C_3N_4$/EPDM NCF) was fabricated by facile solution cast method. g-$C_3N_4$/EPDM NCF with diameter (50 mm) and thickness (4 mm) was investigated towards the photocatalytic degradation of methylene blue (MB) and methyl orange (MO) dye solution under visible light irradiation. The as synthesized g-$C_3N_4$/EPDM NCF was exhibited high crystalline nature with the crystalline size of 21.53 nm, the smooth surface nature and the particle size was observed from the TEM analysis is 20 nm. Furthermore, the influence of operational parameters was carried out which demonstrated that 100 mg photocatalyst and 25 μM of dye concentration were obtained as an optimized condition for the best photocatalytic degradation results. As a result of scavenger experiment, it was concluded that the hydroxyl radical ([rad]OH) was actively involved in the photocatalytic degradation. The g-$C_3N_4$/EPDM NCF were recoverable from the photocatalytic reaction system and the present find findings may open up a new platform for the simple handpicked photocatalyst. © 2017 Elsevier B.V.

### Author keywords

100% recoverability | Dye contaminant | g-$C_3N_4$/EPDM | Handpicking method | Photocatalytic degradation | Polymer

### Indexed keywords

Engineering controlled terms: Aromatic compounds | Azo dyes | Carbon | Crystalline materials | Dyes | Impurities | Nanocomposites | Particle size | Particle size analysis | Photodegradation | Polymers

Engineering uncontrolled terms: g-C3N4/EPDM | Graphitic carbon nitrides | Handpicking method | Operational parameters | Photo catalytic degradation | Photocatalytic reactions | Recoverability | Visible-light irradiation

Engineering main heading: Nanocomposite films

EMTREE drug terms: azo compound | cyanogen | elastomer | ethylene derivative | ethylene-propylene-diene-monomer | graphite | hydroxyl radical | methyl orange | methylene blue | nanocomposite | nitrile

EMTREE medical terms: catalysis | chemistry | infrared spectroscopy | light | particle size | photolysis | radiation response | transmission electron microscopy | water pollutant | X ray diffraction

MeSH:

Azo Compounds | Catalysis | Elastomers | Ethylenes | Graphite | Hydroxyl Radical | Light | Methylene Blue | Microscopy, Electron, Transmission | Nanocomposites | Nitriles | Particle Size | Photolysis | Spectroscopy, Fourier Transform Infrared | Water Pollutants, Chemical | X-Ray Diffraction

## Chemicals and CAS Registry Numbers:

graphite, 7782-42-5; hydroxyl radical, 3352-57-6; methyl orange, 547-58-0; methylene blue, 61-73-4;

Azo Compounds; cyanogen; Elastomers; ethylene-propylene-diene-monomer; Ethylenes; Graphite; Hydroxyl Radical; methyl orange; Methylene Blue; Nitriles; Water Pollutants, Chemical

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