META

Dioxin emissions and environmental imissions

Marklund, S.
Umeaa Univ. (Sweden). Dept. of Environmental Chemistry

Abstract

[en] Polychlorinated dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are ubiquitous in most environmental samples, especially from the northern hemisphere. Due to the extreme toxicity of some of the PCDDs and PCDFs a very intense discussion has taken place during the last two decades with both scientific and public concern. Combustion processes and particularly municipal solid waste MSW incineration is identified as one of the major sources. An improved sampling method has been designed for the analysis of organic micro pollutants, especially PCDDs and PCDFs. The method has been validated with good results against four of the sampling methods currently used in the sampling of PCDDs and PCDFs in flue gas. Different spiking protocols have also been compared. PCDDs and PCDFs have been found in exhausts from cars fueled with gasoline. The emission level from leaded gasoline was 10 times higher as compared to unleaded gasoline. However, the congener pattern clearly shows that the environmental impact from automobile emission is negligible compared with MSW incineration. Thermal treatment of PVC and snow samples after a PVC fire clearly shows that PVC can cause formation of PCDDs and PCDFs. However, in a MSW incinerator where PVC contributes with about 50% of the chlorine load, a remove of PVC from the waste will only minorly effect the emission of PCDDs and PCDFs. A better way to decrease the emission levels of PCDDs and PCDFs is to optimize the burning conditions and use a modern flue gas cleaning technique. This will result in a total reduction of the emission levels by a factor of 100-1000, resulting in an environmental sound method for refuse disposal. 101 refs

Primary Subject

BIOMASS FUELS (C5626)

Source

1990; 192 p; Umeaa Univ; Umeaa (Sweden); ISBN 91-7174-496-7; Worldcat; Dissertation (FD).

Record Type

Thesis/Dissertation

Country of publication
Sweden
Descriptors (DEI)
AIR POLLUTION, BENZOFURANS, CHLORINATED AROMATIC HYDROCARB, COMBUSTION, DIOXIN, EMISSION, ENVIRONMENT, FLUE GAS, HALOGENATED AROMATIC HYDROCARB, MUNICIPAL WASTES
Descriptors (DEC)
AROMATICS, CHEMICAL REACTIONS, FURANS, GASEOUS WASTES, HETEROCYCLIC COMPOUNDS, ORGANIC CHLORINE COMPOUNDS, ORGANIC COMPOUNDS, ORGANIC HALOGEN COMPOUNDS, ORGANIC OXYGEN COMPOUNDS, OXIDATION, POLLUTION, WASTES
Publication Year
1990
Language
English
Reference Number
24006366
INIS Volume
24
INIS Issue
02