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關鍵字(中)	都市垃圾焚化廠、多環芳香族碳氫化合物、金屬、水溶性陰陽離子、指紋化合物
關鍵字(英)	Municipal solid waste incinerator, Polycyclic Aromatic Hydrocarbons, metals, water soluble ions, fingerprint compounds
摘要(中)	本研究分別針對兩座都市垃圾焚化廠之煙道、集塵飛灰與周界環境進行粒狀物中指紋化合物成分調查，此外也針對環境中可能的污染來源進行樣本收集與分析，以主成分分析法作為鑑定周界環境污染來源之參考依據。微粒中指紋化合物分析項目包含 PAHs、金屬成分與水溶性陰陽離子。PAHs 以 GC/MS 分析 36 種 PAHs；金屬成分以 ICP/MS 進行 70 種金屬鑑定；水溶性陰陽離子以 IC 進行 13 種陰陽離子成分分析。 研究結果顯示：A 廠周界大氣微粒中 PAHs 以 Nap、Phen、Flrt、Pyr、BaA、BbF、BeP、IcdP、BghiP 與 Cor 為主要物種；金屬元素以 Mg、Al、K、Ca 與 Fe 地殼元素為主要物種，人為污染金屬元素以 V、Cr、Mn、Ni、Cu、

	Zn、As、Sr、Ba 與 Pb 為主要物種。B 廠周界方面，PAHs 以 Phen、Flrt、Pyr、BaA、BbF、BeP、IcdP、BghiP 與 Cor 為主要物種；地殼元素以 Mg、K、Ca 與 Fe 為主要物種，人為污染金屬元素以 V、Mn、Cu、Zn、As、Sr、Ba 與 Pb 為主要物種；水溶性陰離子以 NO3-、Cl-與 SO42-為主，陽離子以 Na+、NH4+與 Ca2+為主。 周界污染來源鑑定依據主成分分析結果顯示：A 廠各周界點 PAHs 主要來源為交通源；金屬成分則顯示出不同位置的周界點所受到的污染來源並不相同，油煙、交通與焚化廠皆為可能來源。B 廠停爐期間各周界點 PAHs 主要來源仍為交通源；金屬成分則發現上半日主要來自交通源，下半日則來自交通源與廚房油煙；水溶性陰陽離子顯示大部分周界受到廚房油煙與拜香等來源影響。運轉期間所有周界點 PAHs 主要來源仍為交通源；金屬成分大部分周界點受到油煙之影響；水溶性陰陽離子鑑定結果顯示主要來源可能為海水飛沫。
摘要(英)	This study investigated the characteristics of fingerprint compounds in the stack flue gases, fly ashes, and the surrounding ambient air of two municipal solid waste incinerators (MSWIs, A and B). Besides, we collected samples from possible pollution sources in the environment as the references to characterize the source of environmental pollution. The analyses of fingerprint compounds include polycyclic aromatic hydrocarbons (PAHs), metals and water soluble ions. We use gas chromatography/mass spectrometry (GC/MS) to analyze thirty-six PAHs, inductively coupled plasma-mass spectrometry (ICP-MS) to screen seventy metals, ion chromatography (IC) to analyze thirteen water soluble ions. The results of the main characteristic fingerprint compounds on particulate matter are summarized as follows: (1) In the surrounding ambient air of plant A, the major PAHs are Nap, Phen, Flrt, Pyr, BaA, BbF, BeP, IcdP, BghiP and Cor. The major crust metals are Mg, Al, K, Ca and Fe, the major pollutant of the anthropogenic metals are V, Cr, Mn, Ni, Cu, Zn, As, Sr, Ba and Pb. (2) In the surrounding ambient air of plant B, the major PAHs are Phen, Flrt, Pyr, BaA, BbF, BeP, IcdP, BghiP and Cor. The major crust metals are Mg, K, Ca and Fe, the major pollutant of the anthropogenic metals are V, Mn, Cu, Zn, As, Sr, Ba and Pb. The major water soluble anions are NO3-, Cl- and SO42-, the major water soluble cations are Na+, NH4+ and Ca2+. The results of pollution source identification in the environment are summarized as follows: (1) In the surrounding ambient air of plant A on regular operation days, the PAHs mainly come from traffic exhausts, the metals largely come from various sources including oil-fumes, traffic exhausts, and incinerators. (2) In the surrounding ambient air during plant B maintenance period, the PAHs significantly come from traffic exhausts, the metals come from traffic exhaust at a.m., from traffic exhausts and oil-fumes at p.m. The water soluble ions mostly come from oil-fumes and incense ash. (3) In the surrounding ambient air on plant B regular operation days, the PAHs still come from traffic exhausts, the metals come from oil-fumes for the majority of sampling sites. The water soluble ions possibly come from sea.
論文	

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