

# 異性体分析の留意点 特異な異性体組成

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# PCB製品中の異性体

# Typical PCB brand name in different country

(ASKAREL : UK / DELOR : Czecho / SOVOL : Russia)

Japan

USA

Germany

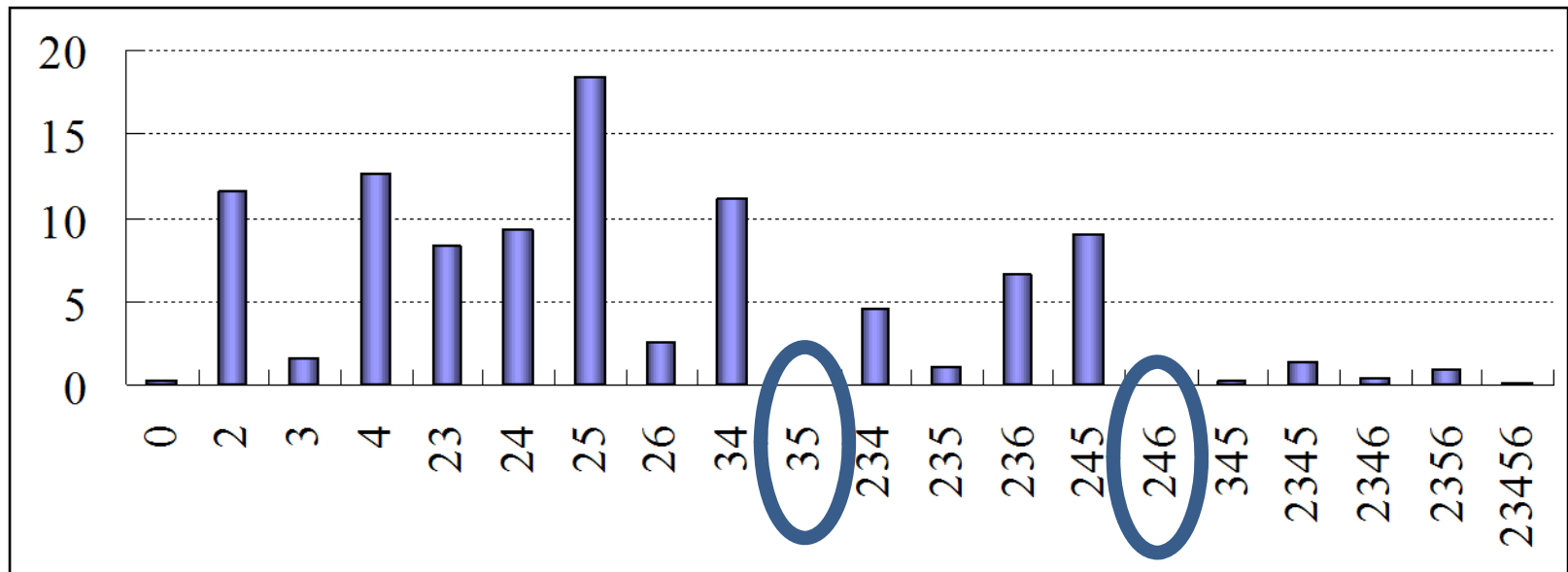
France

France

Italy

Kanechlor	Aroclor	Clophen	Pyralene	Phenoclor	Fenclor
KC-200	1232		2000		
KC-300	1242	A-30	3000	DP-3	42
KC-400	1248	A-40		DP-4	
KC-500	1254	A-50		DP-5	54
KC-600	1260	A-60		DP-6	64

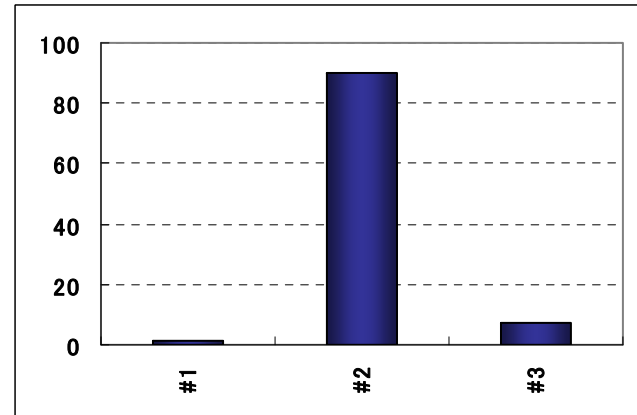
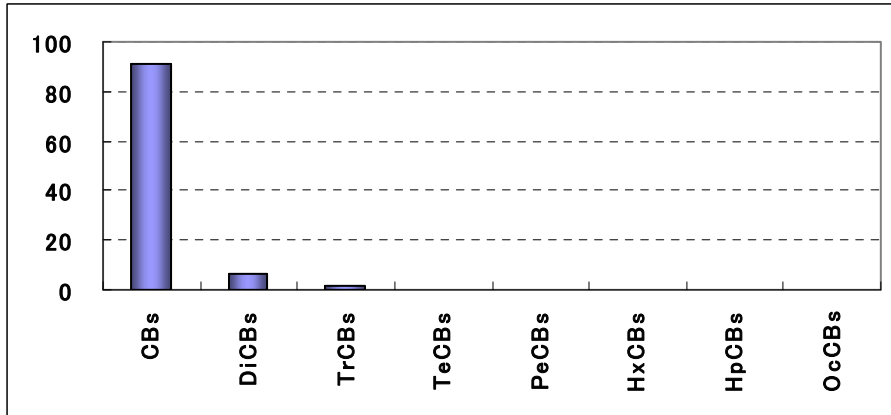
Dominant structure in the PCB product



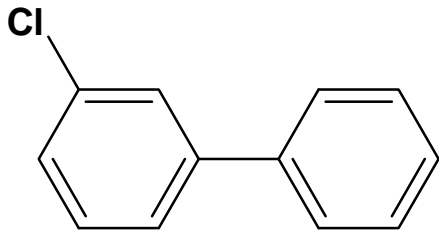


# 特異なPCB異性体組成

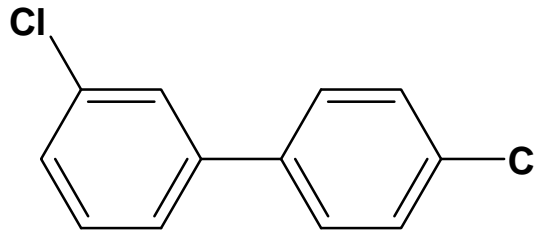
# Cement Industry (Stack gas)



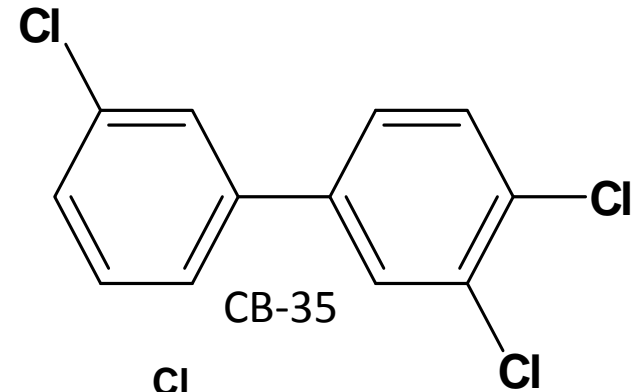
**meta** position substitution : dominant



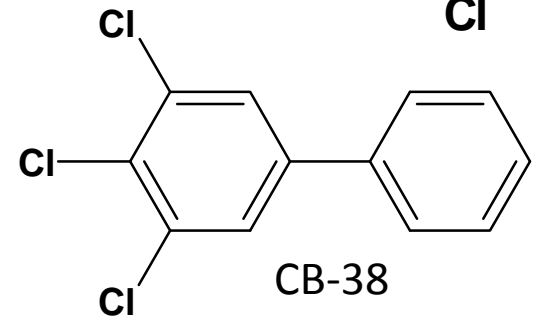
CB-2



CB-13



CB-35



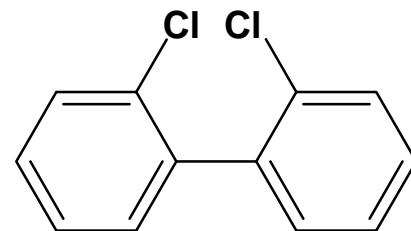
CB-38

CB-2 : **90%** of total PCB

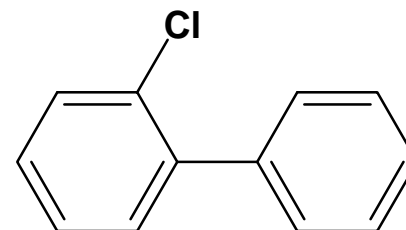
# carpet manufacturing plant

ortho position substitution :dominant

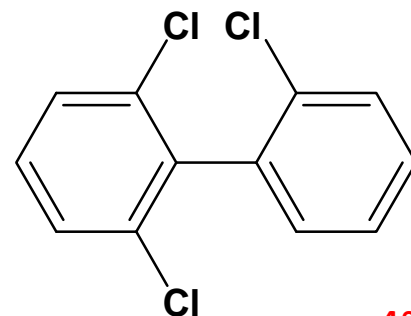
CB-4 : 70% of total PCB



CB-4 70%

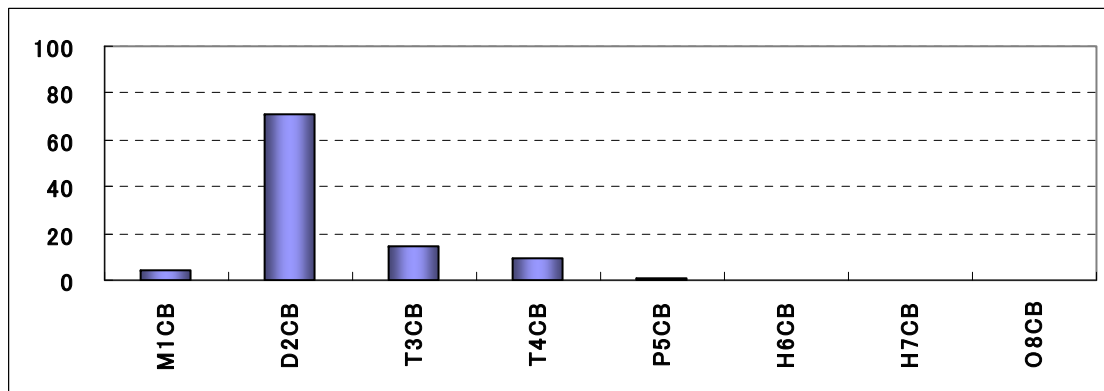


CB-1 5%

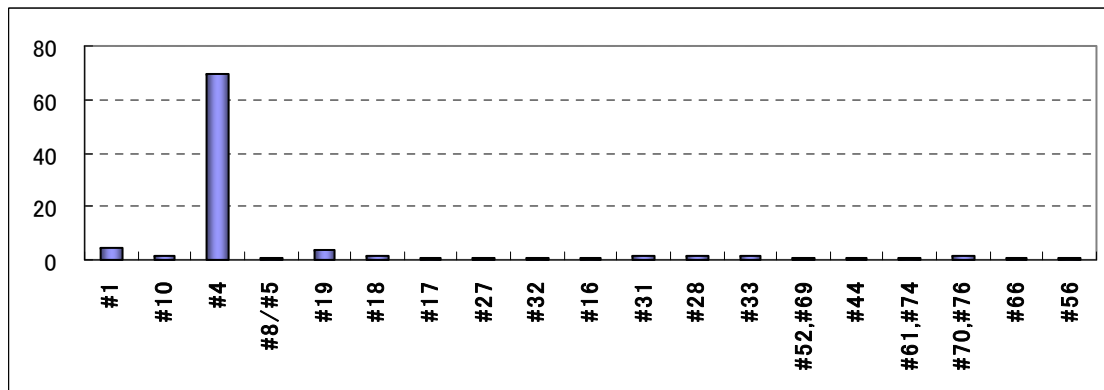


CB-19 4%

dominant congeners

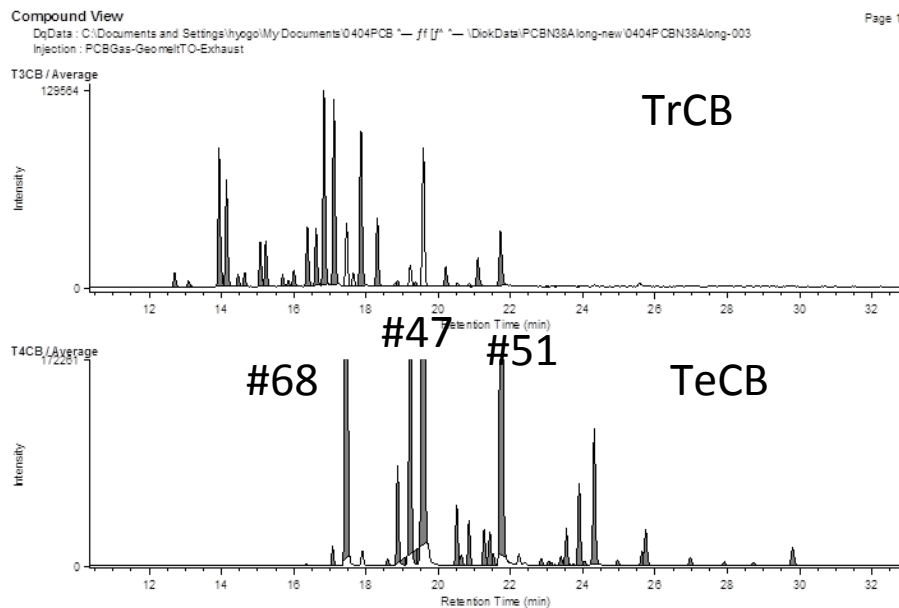


Homologue distribution of PCB (water)

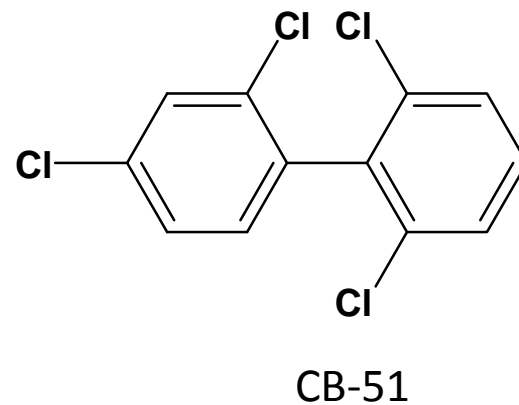
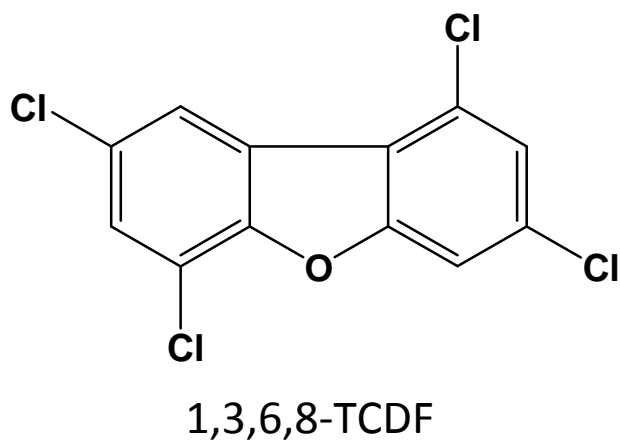
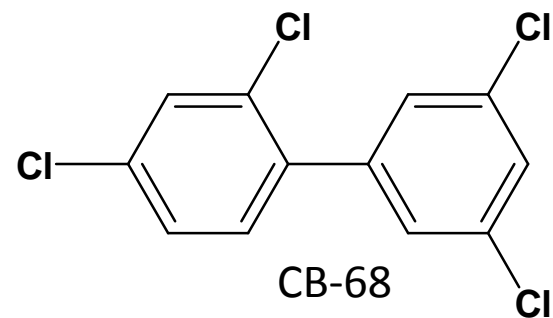
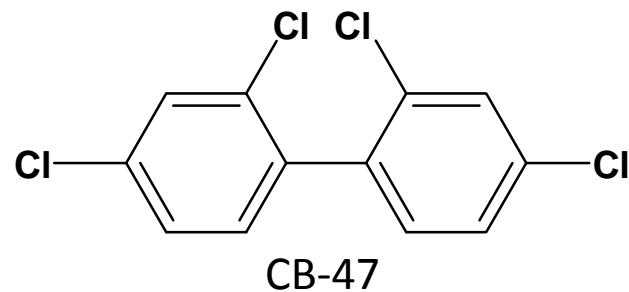


Congener profile of PCB (water)

# Thermal oxidization process (stack gas)

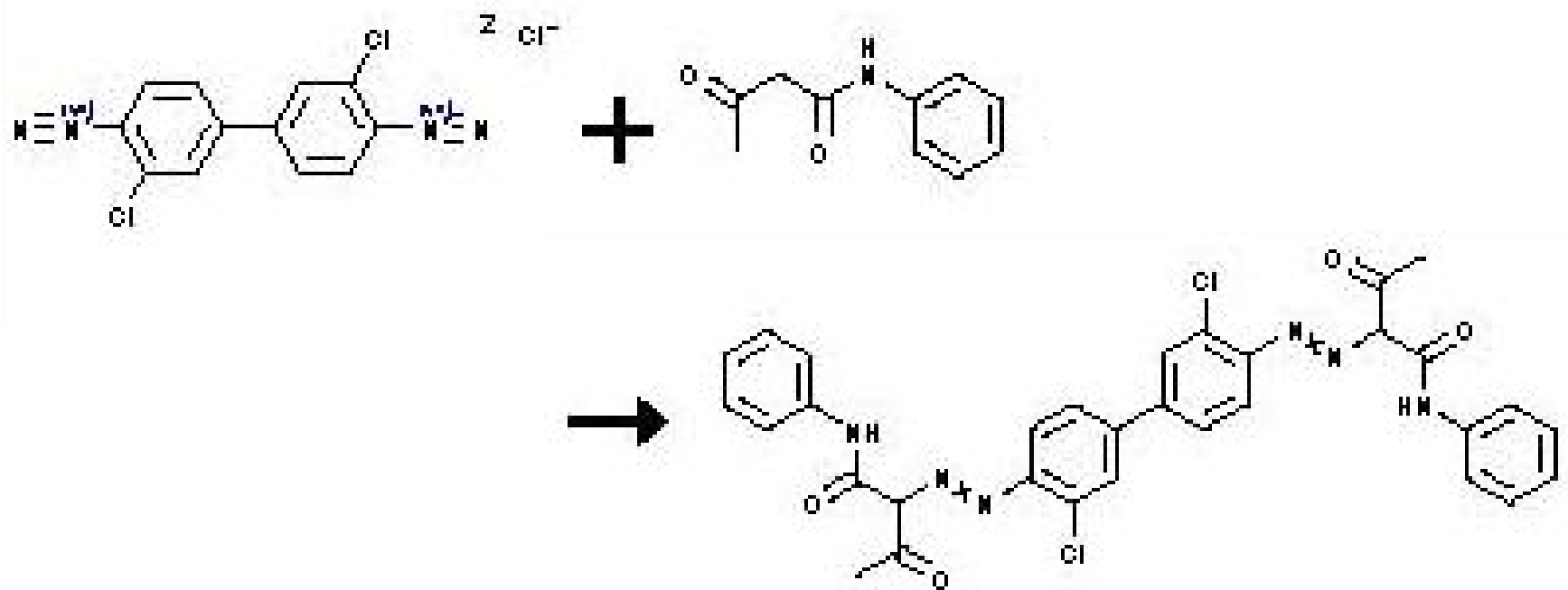
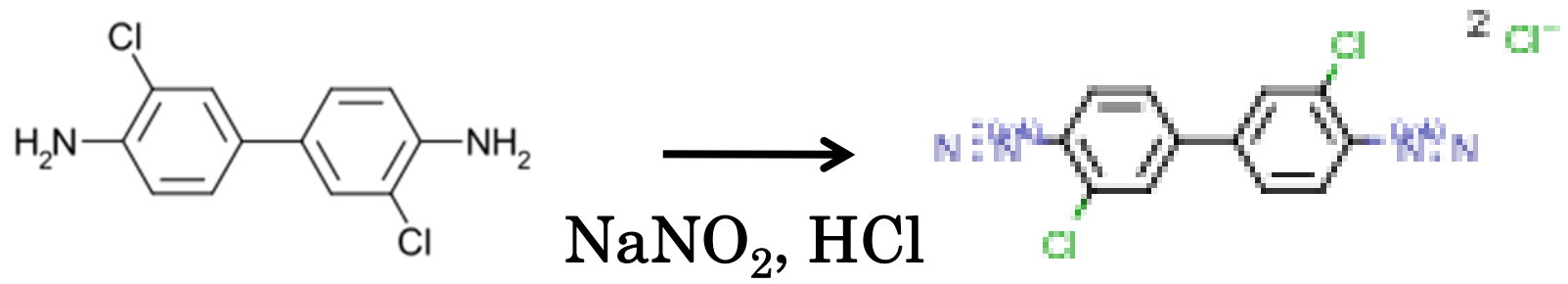


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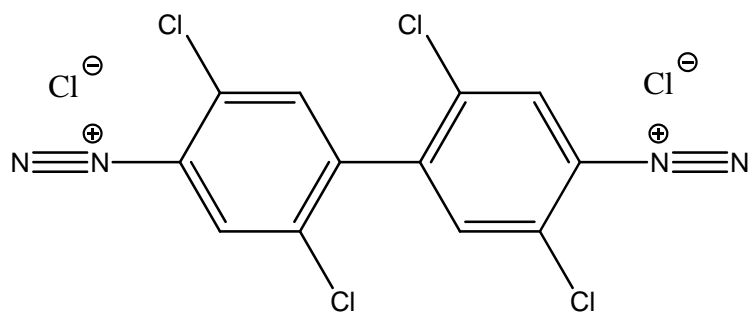
# 顔料中のPCB異性体



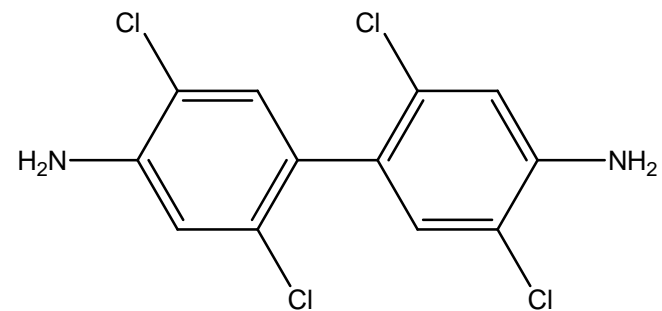


顔料の合成過程の例



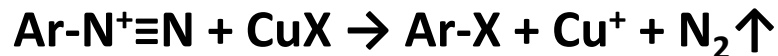


NaNO<sub>2</sub>, HCl

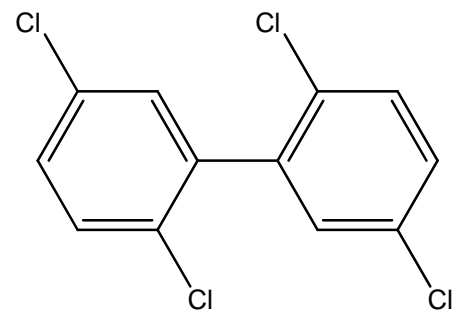


2,2',5,5'-テトラクロロベンジジン

## ザンドマイヤー反応



芳香族ジアゾニウム塩を塩化銅(存在下に生成させ、加温分解すると、アミノ基が塩素置換されたアリールが生成

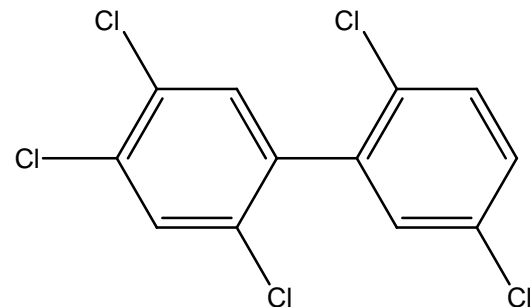


**CB-52(25-25)**

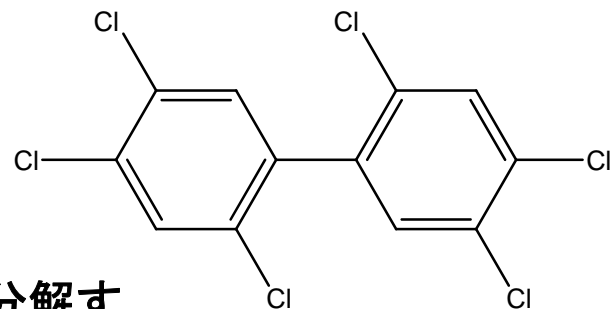


NaNO<sub>2</sub>, HCl

(CuCl<sub>2</sub>)



**CB-101(245-25)**

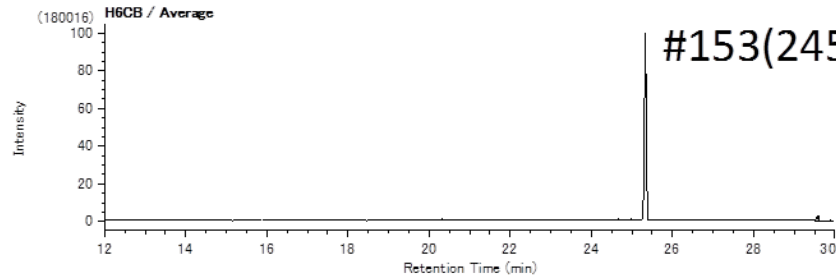
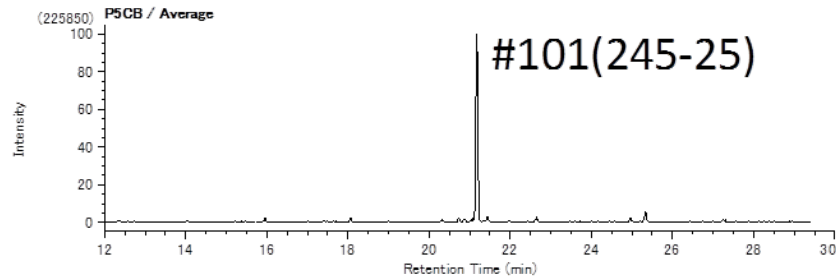
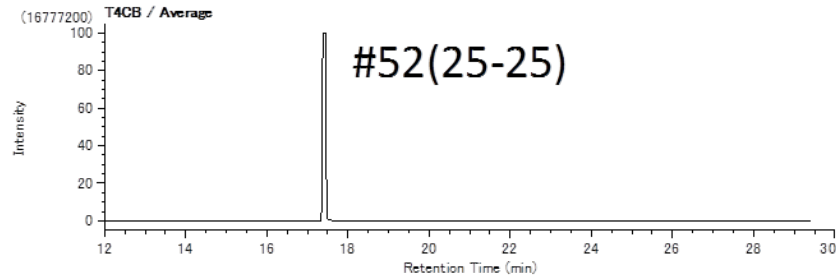
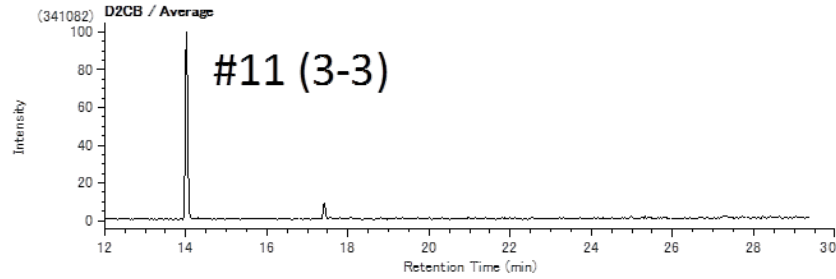


**CB-153(245-245)**

Compound View

DqData: rh (). Injection= P115 (UNK)

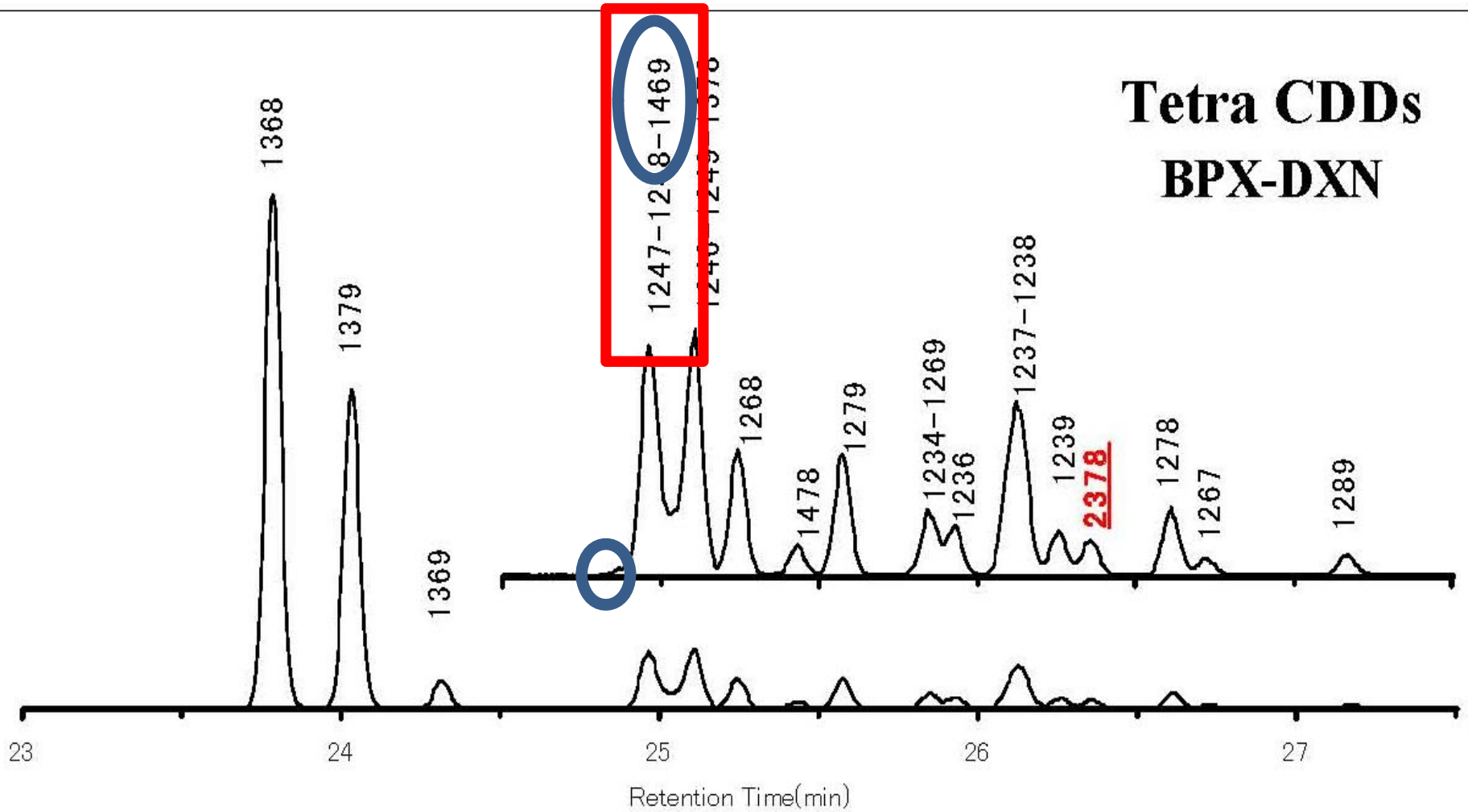
Original: rh\_T-PCB-110420.mfl, InjectionNo= 22, Sample= P115, Date= <Date>



顔料中のPCB異性体 (ジスアゾ系)  
permanent yellow lemon; PY81;

**BPX-DXNによるTCDDアサインの修正**

# Tetra CDDs BPX-DXN



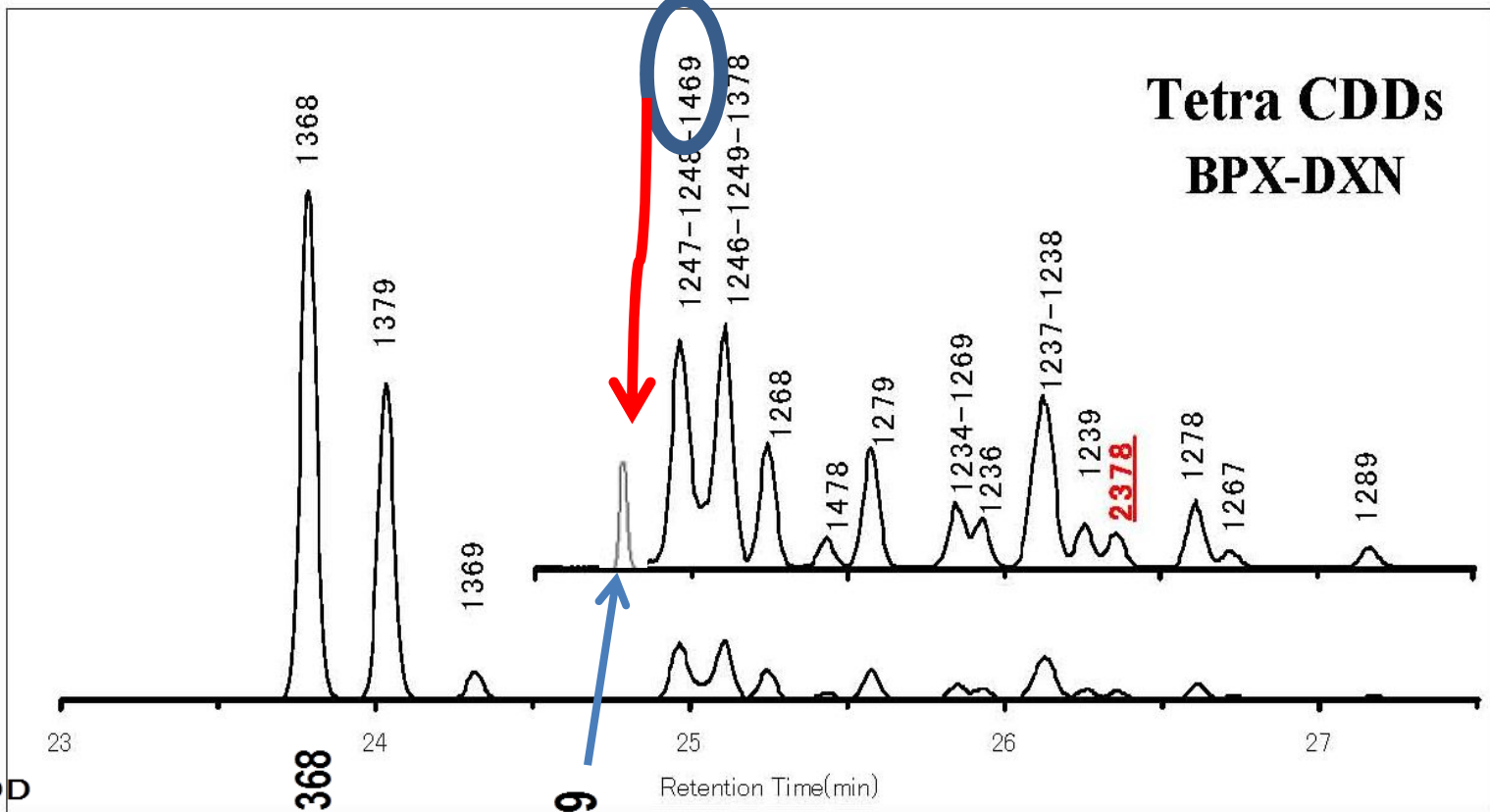
**BPX-DXNカラムによるTCDDの従来のアサイン  
(これまでwebから得られていた情報)**

# 特異な異性体組成の試料

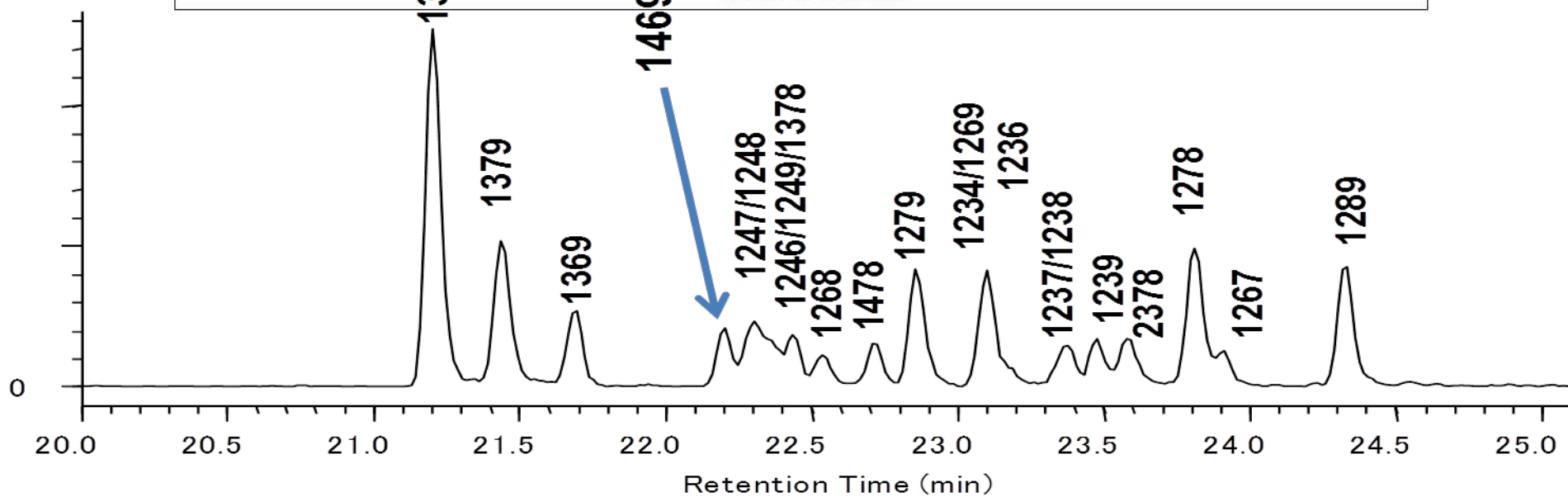
通常、河川では1368-,1379-

特異な排出源があると組成が変化

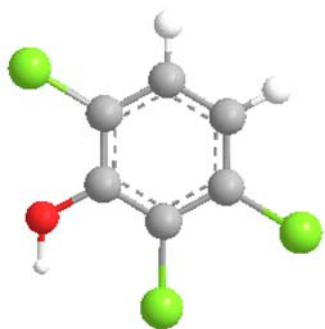
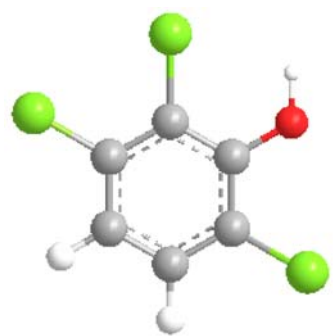
# Tetra CDDs BPX-DXN



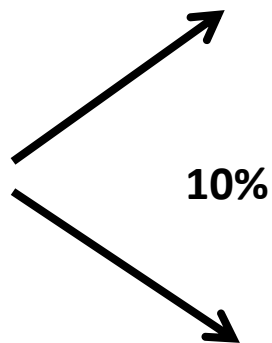
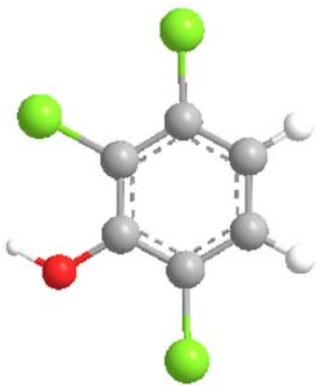
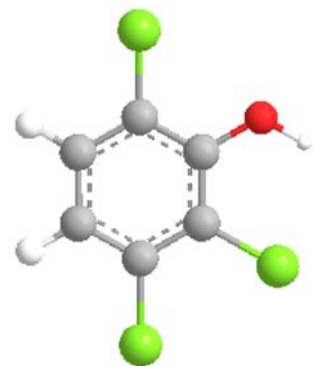
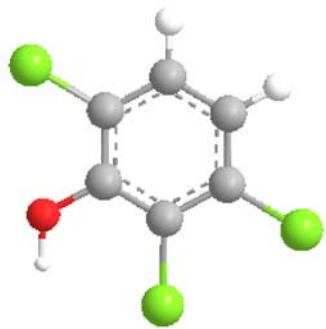
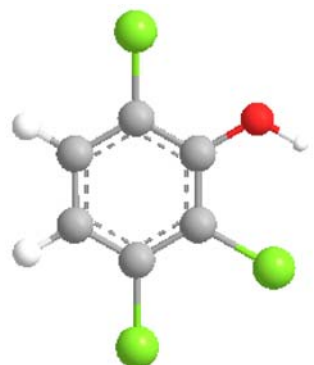
T4 CDD



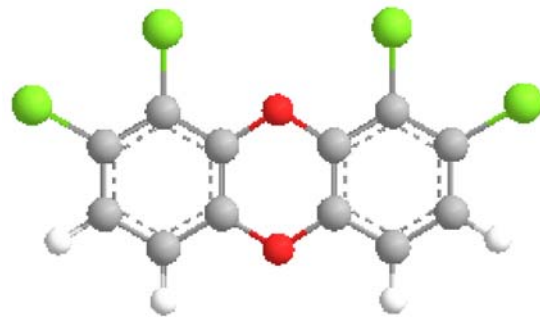
# 関連するTCDDの合成



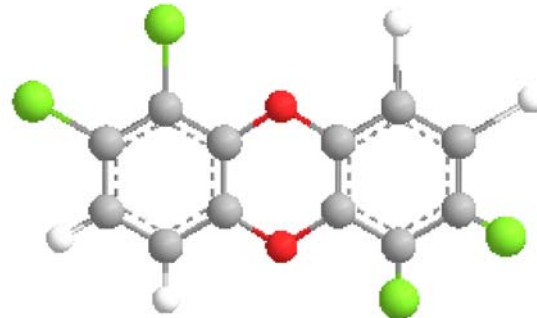
**2,3,6-Trichlorophenol**



10%



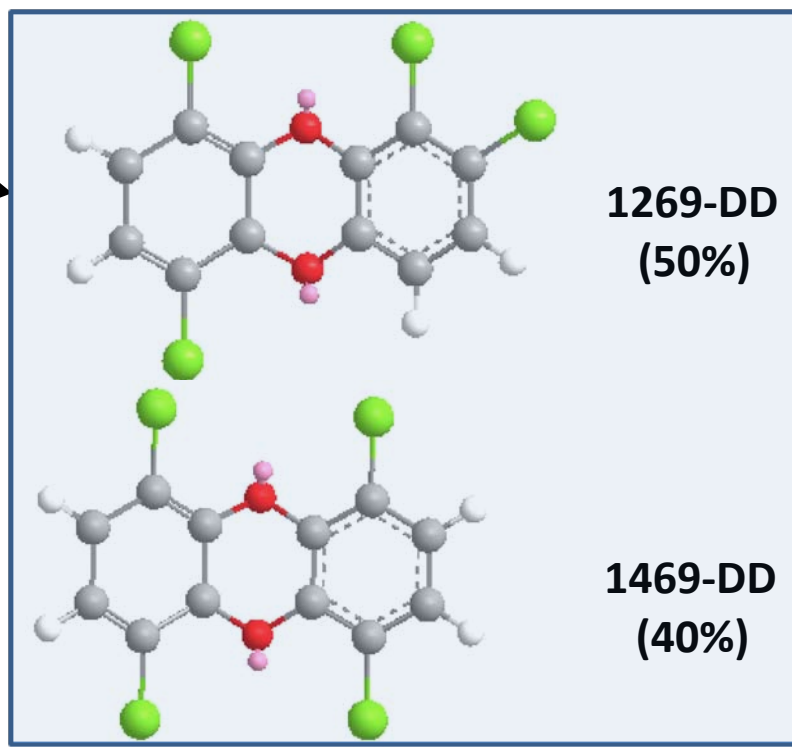
**1289-DD  
(0.1%)**



**1267-DD  
(10%)**



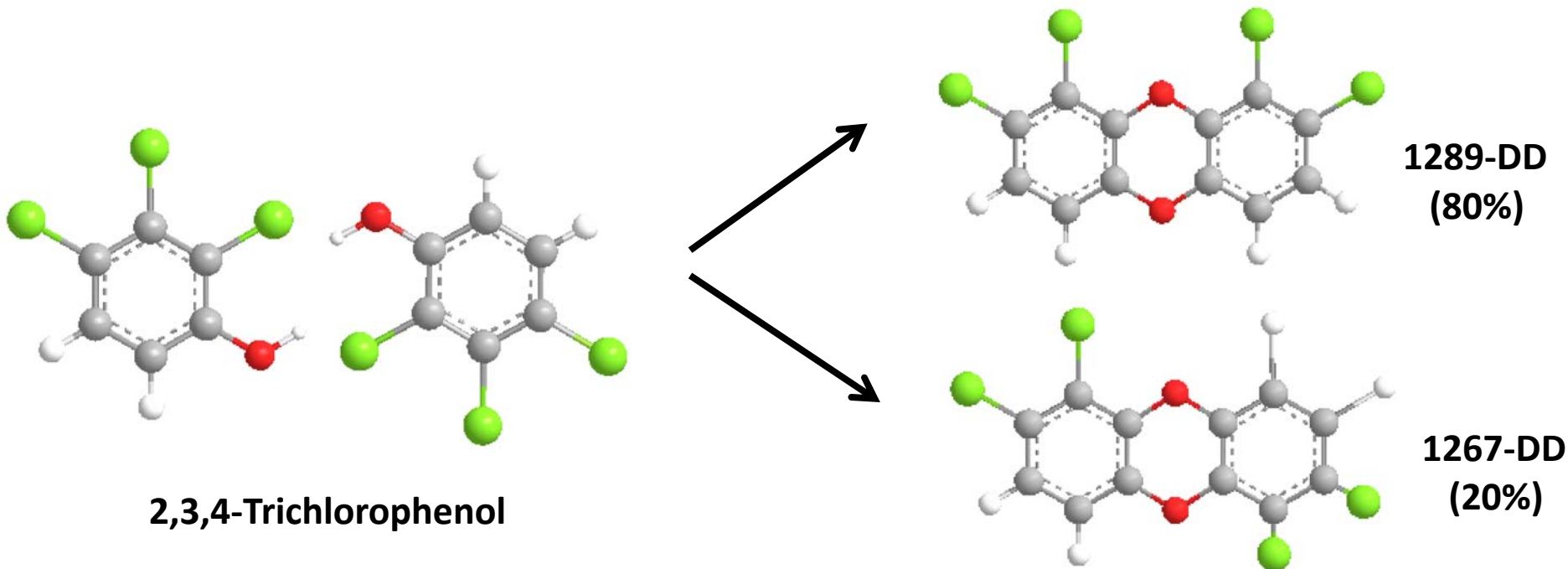
90%



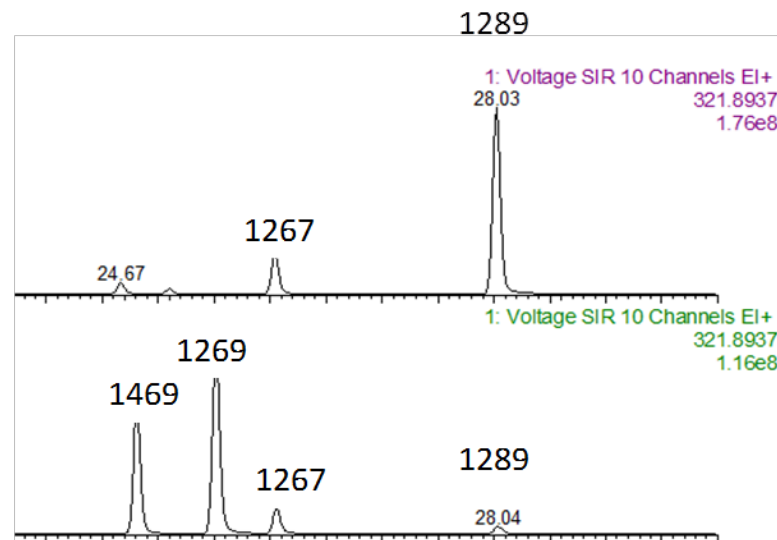
**1269-DD  
(50%)**



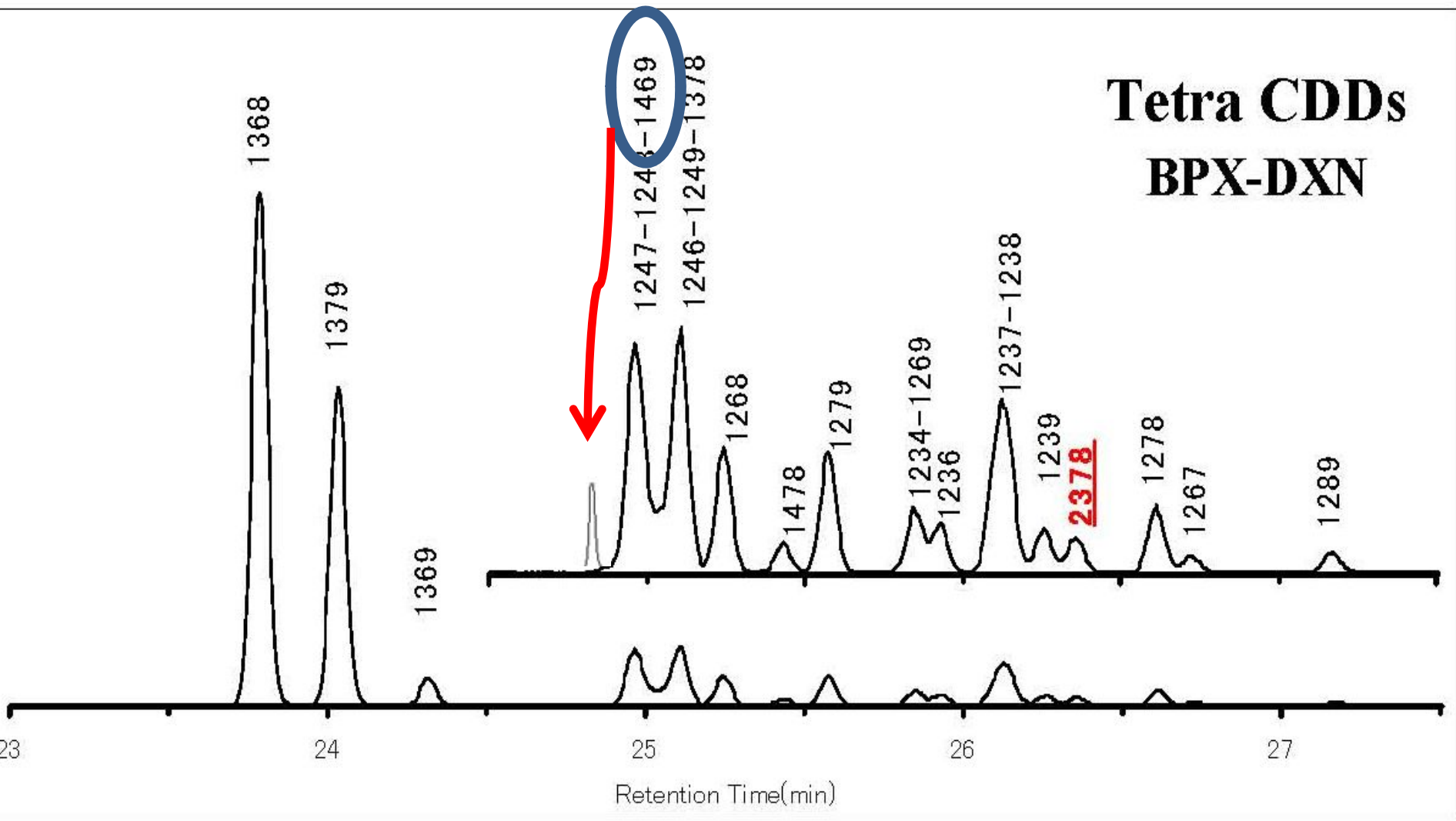
**1469-DD  
(40%)**



**2,3,4-Trichlorophenol**



# Tetra CDDs BPX-DXN



- PCB 製造工程：特異な異性体組成
- PBDE<sub>154</sub>、PBB<sub>153</sub> Br<sup>-</sup> NCl分析のみ
- PCB、PBB、PXB (FeCl<sub>3</sub>製造)
- PCB、PBDE 代謝物 (生体試料)
- PFOS LC/MS 分岐・直鎖アサイン
- PBDD、PCDD、PXDD
- PBDF、PCDF、PXDF
  
- POPs HCH, DDT, CHL キラル分析
- PCB キラル分析

## 合成標準品の配布

- **1,4,6,9-,1,2,6,9-,1,2,6,7-,1,2,8,9-DD**
- **1,2,6,7-,1,2,8,9-DD**
- **特異な異性体組成の試料の抽出液**

## 顔料抽出液の配布

- **発表した試料抽出液**

**配布を希望される方は中野まで、  
メールください。**

**ご清聴ありがとうございました。**