

# Fully Automated Sample Preparation System for POPs Analysis

**DSP** systems  
The missing link in your laboratory!



Presented by Chris van Wakeren | [info@DSPsystems.ca](mailto:info@DSPsystems.ca) | [www.DSPsystems.eu](http://www.DSPsystems.eu)

Showcase Presentation #6

# Introduction to DSP-Systems Automated Sample Purification



# GO-EHT

## Features and main benefits of POPs purification

- **“Green approach”**; Less than 100ml organic solvents
- **Low volume of purified fractions**; 2 x 1.5mL
- **2, 4 or 6 independent channel configuration**
- **Throughput over 100 samples weekly**
- **Time saving**; 80 minutes per series (2-4-6 samples)

Prepacked certified column sets



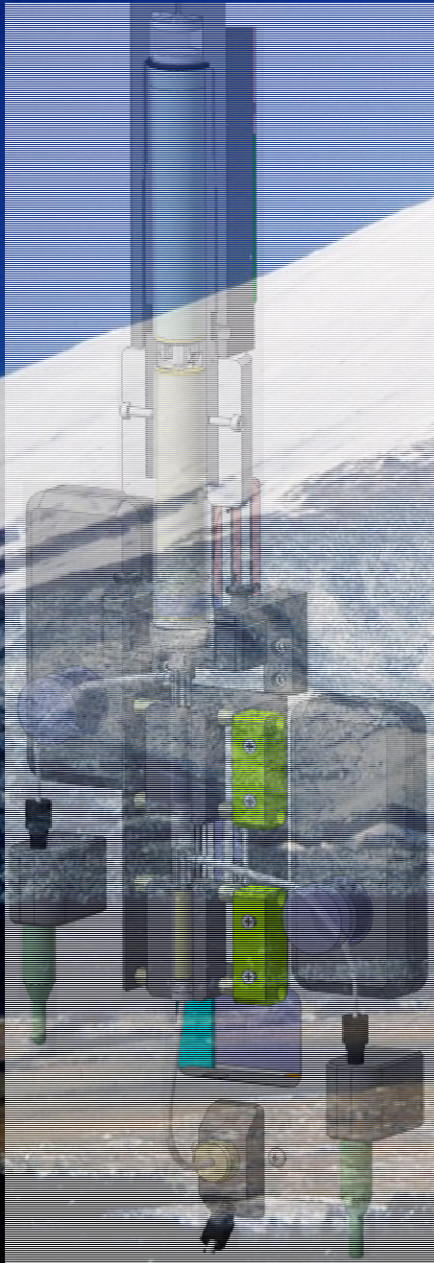
# GO-EHT

## No's

- No DCM
- No Washing
- No contact system and sample
- No clogging
- No cross contamination/carry-over
- No fume hood required



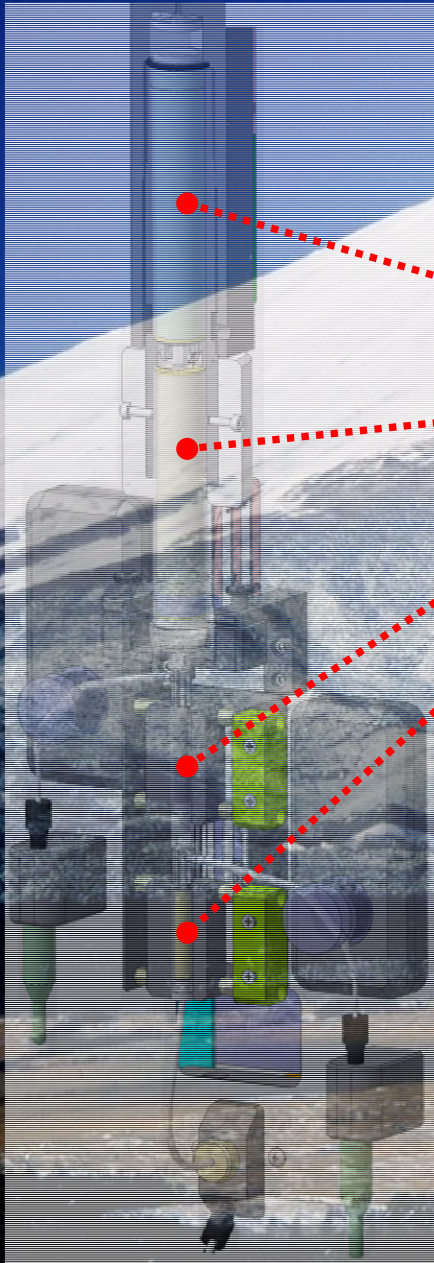
# GO-EHT



- **High performance clean-up**
- **User-friendly column design**
- **Unique way of flow **switching** without valves**



# Column sets



➤ **High performance clean-up**

➤ **4 columns**

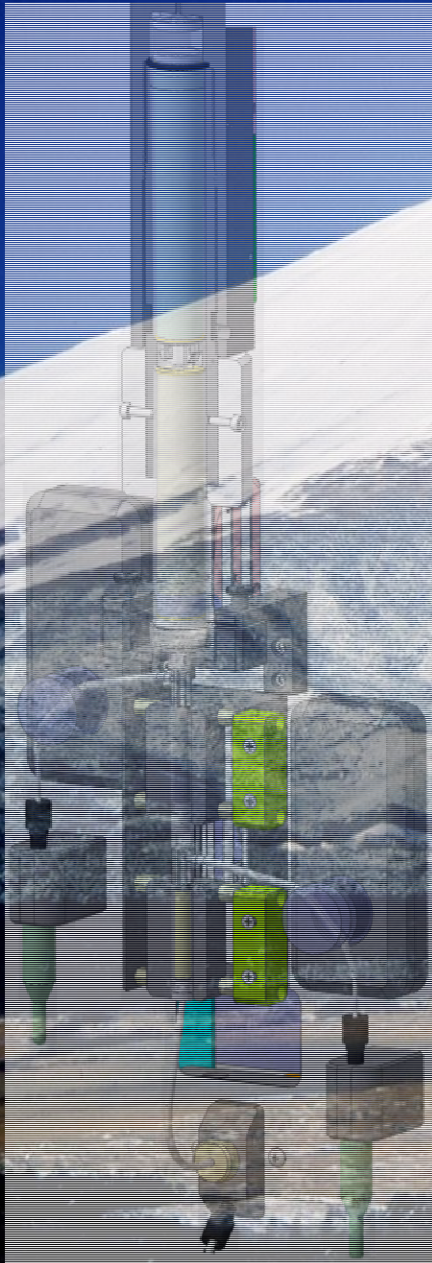
- Silver nitrate Si column (12g)
- Sulfuric acid Si column (13g)
- Carbon/Florisil column (0,7g)
- Alumina column (0,8g)

➤ **Heated purification and elution**

1. Accelerates chemical reaction rates (oxidation with sulfuric acid or nitric acid) with sample matrices and Si columns
2. Enhances dioxins and PCBs elution speed with only small volume of hexane, because the adsorption strength with silica gel is weakened by the heat.



# Column sets



➤ **User-friendly column design**

- Controlled applying of sample
- Easy connection
- Disposable, no cross contamination
- No washing is required
- **Certified**



X300-073-3042-0  
No.193051-1/11

**MIURA**

# Certificate

## of column set for GO system



MIURA CO., LTD.  
Environmental Business Headquarters

This material is intended to be used for the determination of selected polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), and polychlorinated biphenyl (PCB) congeners, in food/feed, environmental matrices, and similar matrices.

Material	20Φ Column set
Product Code	X300-002-2100
Lot No.	193051

Tests	Result	Criteria
Blank Values of PCDDs/PCDFs pg-TEQ/column set	< 0.43	< 0.5
Blank values of DL-PCBs pg-TEQ/column set	< 0.019	< 0.05
Blank values of NDL-PCBs pg-congener /column set	The highest isomer ( #28 ) < 0.81	Each isomer < 200
Recovery PCDDs/PCDFs/ DL-PCBs	74 to 107 %	70 to 120 %
Recovery NDL-PCBs	90 to 99 %	70 to 120 %

Miura certifies that this product complies with all quality specifications. It was produced and inspected in accordance with the most current edition of the Miura Corporation Quality System Manual.  
Contact: For any questions regarding your purchased product or the contents of this certificate, please contact your distributor.

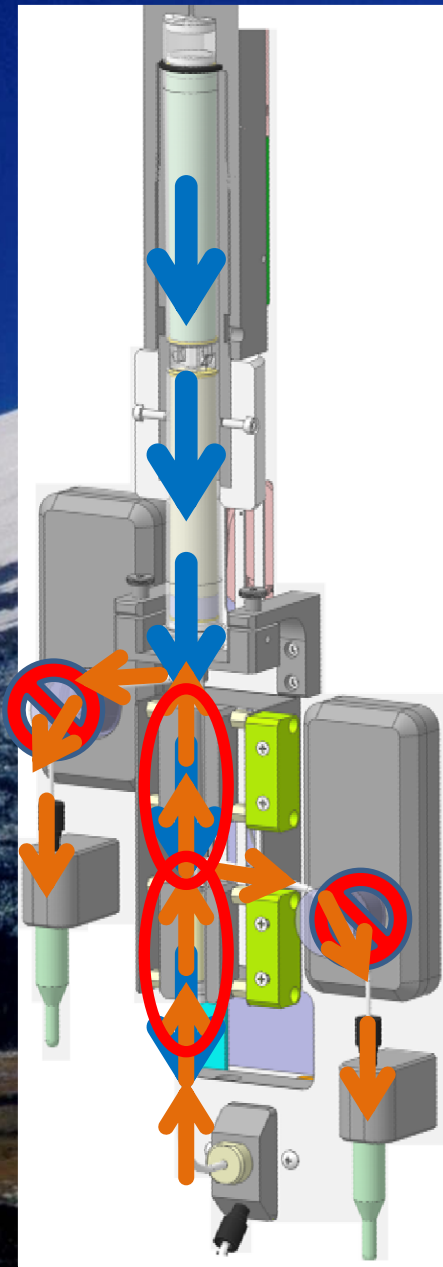
**DSP** systems  
The missing link in your laboratory!

- The recovery rates of all PCDD/Fs and PCBs must be > 70%
- The blank values PCDD / Fs must be <0.5 pg TEQ / column set
- The blank DL-PCBs must be <0.05 pg TEQ / column set





# Flow switching scheme



## ➤ Solvent flow of purification and elution steps

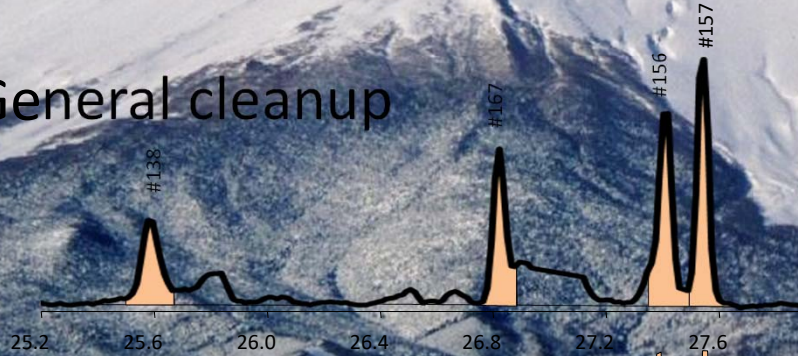
- 90 mL of hexane for eluting dioxins and PCBs:
- Trapping dioxins and NO-PCBs on carbon
- Trapping MO and NDL-PCBs and PBDEs on alumina
- Open the pinch valve
- Elution PCBs with 1.5 ml of toluene
- Close the pinch valve and open the other pinch valve
- Elution Dioxins with 1.5 ml of toluene



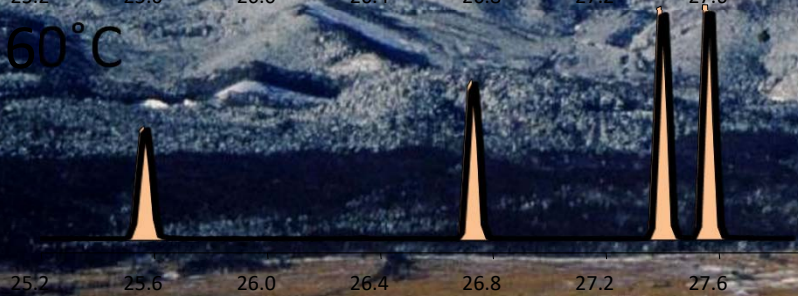
Heated purification column  
→ High grade purified fractionations

*Manual apply* →

General cleanup



60°C



DXN & PCB determination with high reliability

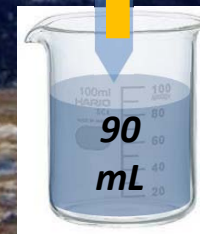
12g Silvernitate -Si

13g Acidic Si

0.7g Carbon

0.8g Alumina

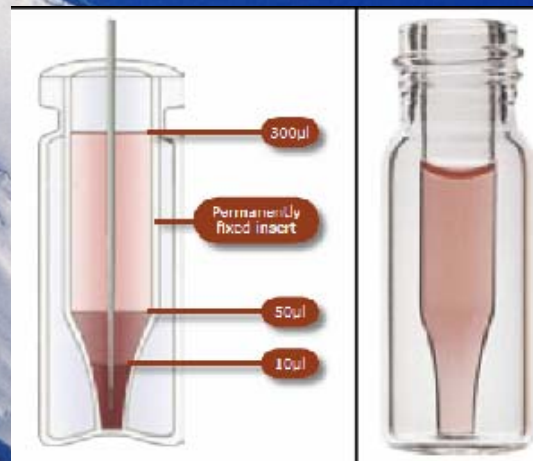
PCB fr.  
Mono-*o*-PCBs  
NDL-PCBs  
PBDEs



DXN fr.  
PCDD/DFs  
Non-*o*-PCBs



# GC-vials and CentriVap



Showcase Presentation #6



# More information

- [Chris.van.Wakeren@dspsystems.eu](mailto:Chris.van.Wakeren@dspsystems.eu)
- [Wim.Traag@dspsystems.eu](mailto:Wim.Traag@dspsystems.eu)
- [www.dspsystems.eu](http://www.dspsystems.eu)
- Phone : +31-85 047 9266

