BRANDERA AT A1 AT EUOIS2
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To: RIETBRG AT A1 AT EUOIS2 , HUISMAW AT A1 AT EUOIS2 , QUARLES AT A1 AT WWPS , NISHIKAY AT A1 AT WWPS , ABEA AT A1 AT YOVX00 , SAWATAI AT A1 AT YOVX00 , PRIMUSCJ AT A1 AT WWPS , ZIPFEL AT A1 AT WWPS
cc: YOKOYAK AT A1 AT YOVX00
Subject: First draft C-8 sampling + analysis procedure

To: see distribution list
From:R.A. Brandenburg

As promised I would come back in February with a proposal for uniform sampling and analysis procedures for C-8. The reason for this is that sofar, most C-8 results have been generated in a non-routine way. The choice of sample-taking equipment, sample preparation, and actual analytical technique was often based on individual preference. Although the analytical techniques can easily be verified by using standard solutions, this is not the case with the sample collection, concentration and preparation. Therefore special emphasis should be given to the way of sampling and preparation.

We want to be able to compare results from different sites, and -most importantly- to compare last years' results with next years' result. This is only possible if we use the same methods all the time.

Attached is a matrix with 4 columns. The first column lists the various samples we may have to deal with. Column "C" indicates the proposed sampling Collection /Concentration method. Column "P" is for the sample Preparation, and column "A" is for the Analysis.

This is just a first shot so if you have other ideas or additions, please don't hesitate to let me know. Also I should like to know if Parkersburg and MDF have value for this global approach, and are willing to adjust their procedures where necessary to achieve some degree of global uniformity. Please answer before April 1.

best regards,

Rik Brandenburg

DRAFT PROCEDURE FOR C-8 SAMPLING AND ANALYSIS

I. POSSIBLE SAMPLES	COLLECTION/ CONCENTR.	PREPA- RATION	ANALYSIS METHOD
explanation of numbers, see page 2, code letter :	"C"	"P"	"A"
C-8 POWDER IMPURITIES	C3.1	P5	A3
C-8 POWDER ASSAY	C3.1	P9	A6
C-8 SOLUTIONS FROM VENDOR	C2.1	P0	A6,7
C-8 SOLUTIONS FROM RECOVERY SYSTEMS	C2.1	P0	A6,7
C8 DUST IN AIR (PERSONNEL EXPOSURE SAMPLES)	C1.3	P0	A5
C8 VAPOR IN AIR (PERSONNEL EXPOSURE SAMPLES)	C1.1	P4	A3
C8 VAPOR + DUST IN STACKS,EXHAUSTS	C1.2	P5	A3
C8 IN RIVER WATER (PPB)	C2.1	P0	A4
C8 IN GROUND WATER (PPB)	C2.1	P0	A4
C8 IN SCRUBBER EFFLUENTS	C2.1	P5	A3
C8 IN SUPERNATE	C2.1	P0	A1
C8 IN FEP WASTE WATER	C2.1	P2	A1
C8 IN PTFE WASTE WATER	C2.1	P2	A1
C8 IN VITON WASTE WATER	C2.1	P2	A1
C8 IN PFA WASTE WATER	C2.1	P2	A1

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C8 IN WASTE WATER FROM FLUOROPOLYMERS	C2.1	P2
A1		
C8 IN WATER FROM BIOTREATMENT	C2.1	P2
A1		
C8 IN TEFLON DISPERSION	C2.2	P3
A1		
C8 IN WET TEFLON POWDER	C3.1	P6
A1		
C8 IN TEFLON POWDER FINISHED PRODUCT	C3.1	P3
A1		
C8 IN WET VITON BEFORE BUSS KNEADER	C3.2	P ?
A ?		
C8 IN VITON SHEET	C3.3	P ?
A ?		
C8 IN FEP BEFORE TD DRYER	C3.1	P3
A1		
C8 IN FEP FINISHED PRODUCT	C3.1	P ?
A ?		
C8 IN WAX	C3.4	P10
A1		
C8 IN LANDFILL PTFE	C3.1	P3
A1		
C8 IN DRYER PAPER	C3.5	P3
A1		
C8 IN BIOTREATMENT SLUDGE	C3.6	P5+11
A3		

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II. EXPLANATION OF NUMBERS IN COLUMNS "C" ,"P" AND "A"

COLUMN "C": POSSIBLE SAMPLING COLLECTION AND CONCENTRATION METHODS

C1.: GAS:

C1.1. On tenax

C1.2. In a water scrubber or impinger

C1.3. on a dust filter specially for air samples

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C1.4. in a plastic bag

C2. LIQUID

C2.1. Just a water sample

C2.2. dispersion or emulsion

C2.3. absorption on active carbon

C2.4. absorption on an ion-exchanger

C3. SOLID

C3.1. wet or dry powders, pellets or cubes

C3.2. wet Viton before buss kneader

C3.3. Viton sheet

C3.4. wax

C3.5. paper

C3.6. biotreatment sludge

COLUMN "P": POSSIBLE SAMPLE PREPARATION METHODS

P0. none

P1. dissolve in water

P2. shake with water + CHCl3

P3. reflux with water + CHCl3

P4. desorption from tenax

P5. esterification and extraction
P6. desorption from active carbon

P7. desorption from ion exchanger

P8. vacuum-drying of wet solids (polymer, paper, sludge, wax)

P9. dissolve in anhydrous acetic acid
P10.dissolve in CHCl3

P11.filter solids after extraction

COLUMN "A": POSSIBLE METHODS OF ANALYSIS

A1. methylene blue and spectrometry (10 ppm - 1%)
A2. CTMAB titration (very inaccurate)
A3. GC (ppm level).
A4. CH2M HILL method (ppb level)

A5. weigh dust particles on filter

In addition: For pure C-8 or commercial solutions:

A6. perchloric acid titration
A7. density tests

A8. refractive index
A9. acid/base titration