QUALITY CONTROL SAMPLES
(EPA)

Environmental Protection Agency

Quality Control Samples

TAB PLACEMENT HERE

DESCRIPTION:

Analytical Standard Data

Sheets

☑ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

ANALYTICAL STANDARD DATA SHEETS

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: 1,1,2-Trichloroethane

SYNONYMS: Ethane trichloride
α-Trichloroethane
Vinyl trichloride
1,1,2-Trichloroethane

CAS NUMBER: 79-00-5

MOLECULAR FORMULA: $C_2H_3Cl_3$

REPOSITORY NUMBER: E-000013

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10000 ± 500 µg/mL

STANDARD CODE: 1302

DATE PREPARED 16 August 83

STORAGE AND PRESERVATION: Store at ≤5°C; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Aldrich

CATALOG NUMBER: T5,475-5

LOT NUMBER: 070177

PURITY: >99% (QAS)

Reference Chromatograms:
EPA Method 601
(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: KJ 3150000

HAZARDS: Carcinogen--Oral Mouse and Rat, Conclusive, FLAMMABLE (METHANOL)
TOXIC, Skin Irritant, Hazardous Decomposed Product,
Narcotic in High Concentration

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

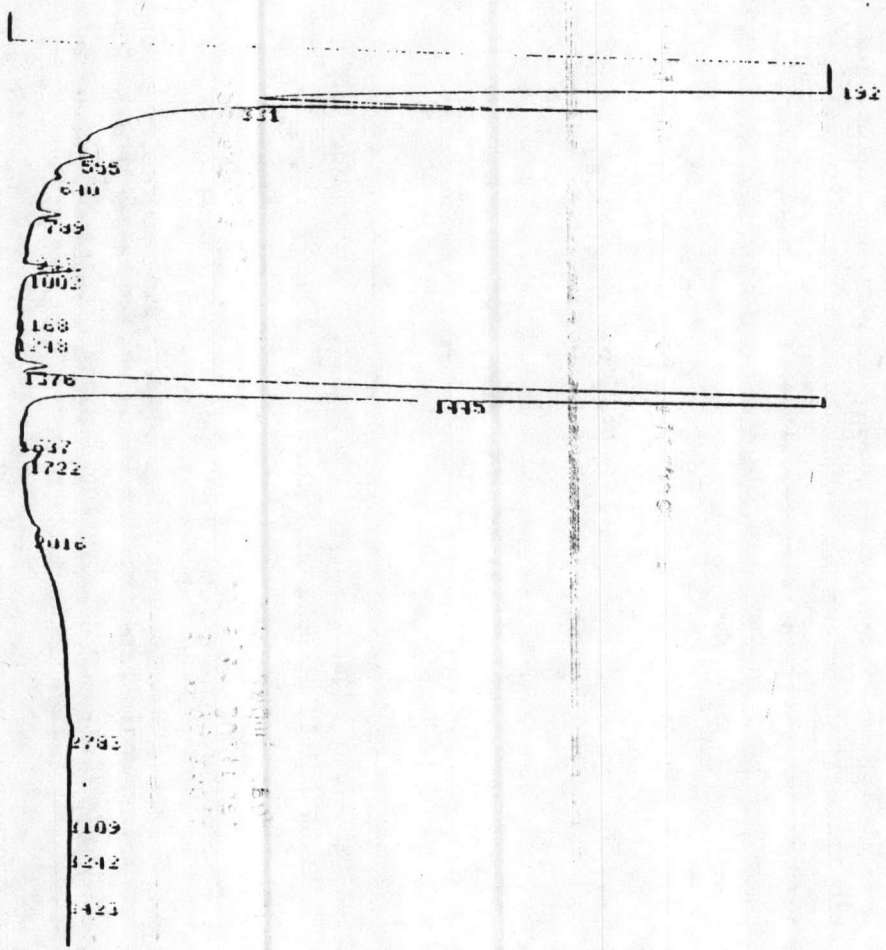
PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.

****

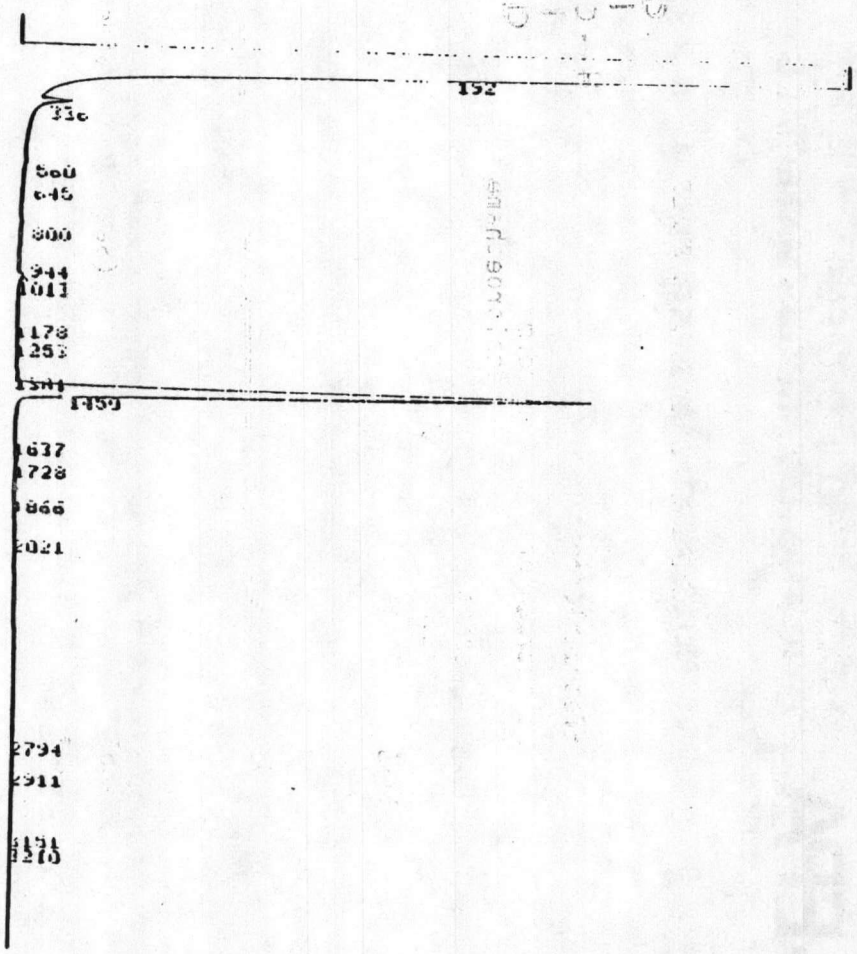
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



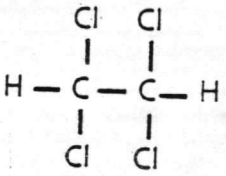
LOW ATTENUATION



1,1,2-Trichloroethane

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET



IDENTIFIERS

COMPOUND NAME: 1,1,2,2-Tetrachloroethane

SYNONYMS: Acetylene tetrachloride, Bonoform, Cellon, Tetrachloroethane, sym-Tetrachloroethane, 1,1-Dichloro-2,2-dichloroethane

CAS NUMBER: 79-34-5

MOLECULAR FORMULA: $C_2H_2Cl_4$

REPOSITORY NUMBER: EC-000014-01

STANDARD SOLUTION

CONCENTRATION: 10,000 ± 1000 µg/mL*

SOLVENT: Methanol

STANDARD CODE: 14-01-03

DATE PREPARED: 8 May 84

Reference Chromatogram (See Reverse Side)

STORAGE & PRESERVATION: Store at ≤5°C; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Dessicate, protect from moisture. Allow to equilibrate to room temperature before use.

PURITY

PURITY ASSAY OF NEAT COMPOUND: QAR 98%

*Concentration of the standard solution was corrected for purity at the time the solution was prepared.

HAZARDS

NIOSH REGISTRY NUMBER: KI8575000

LD_{50}: Not Listed

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

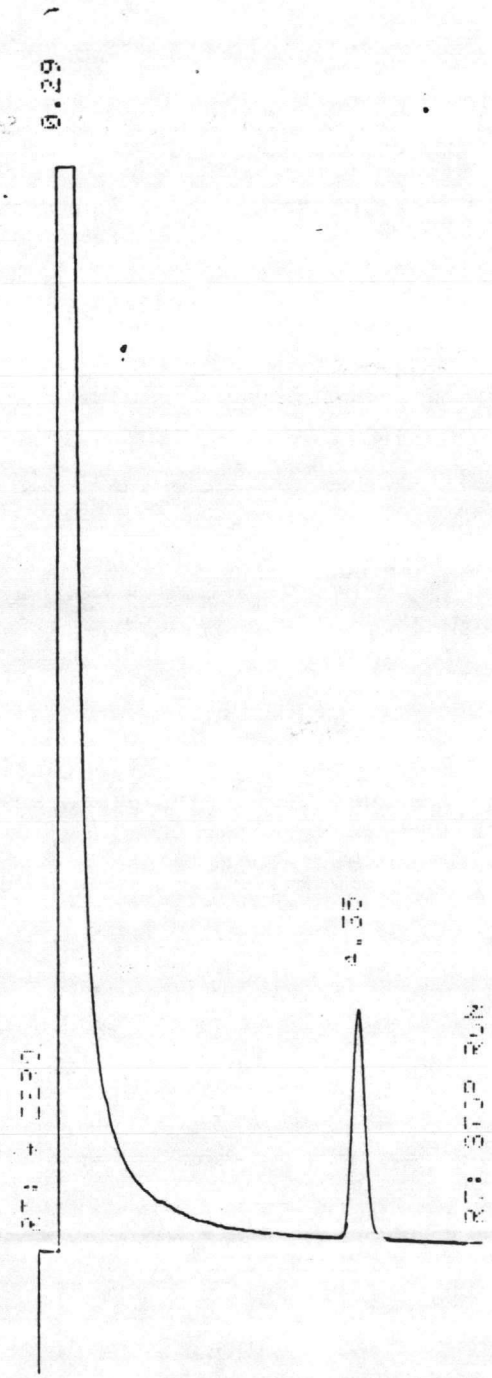
HAZARDS: Animal positive carcinogen, Flammable (MeOH) CAUTION - NARCOTIC

PERSONNEL PROTECTION: Wear impervious gloves and laboratory clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

For comments or questions concerning those standards please contact:

Quality Assurance Branch
U.S. Environmental Protection Agency-EMSL
26 West St. Clair Street
Cincinnati, OH 45268

(513) 684-7327



1,1,2,2-Tetrachloroethane
EPA Reference Method 601
Column: 1% SP 1000/CarbopakB

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: trans-1,2-Dichloroethylene

SYNONYMS: 1,2-Dichloroethylene
Acethylene dichloride
sym-Dichloroethylene
1,2-Dichloroethene
Disform

CAS NUMBER: 540-59-0

MOLECULAR FORMULA: $C_2H_2Cl_2$

REPOSITORY NUMBER: E-000028

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10000 ± 500 µg/mL

STANDARD CODE: 2802

DATE PREPARED: 16 MARCH 81

STORAGE AND PRESERVATION: Store at ≤5°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Aldrich

CATALOG NUMBER: D6-220-9

LOT NUMBER: 092 887

PURITY: >99% (QAS)

Reference Chromatograms:
EPA Method 601
(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: KV9360000

HAZARDS: Toxic, Skin Irritant, Irritating Vapors, Fire Hazard
Moderate Explosion Hazard, Hazardous Decomposed Product

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.

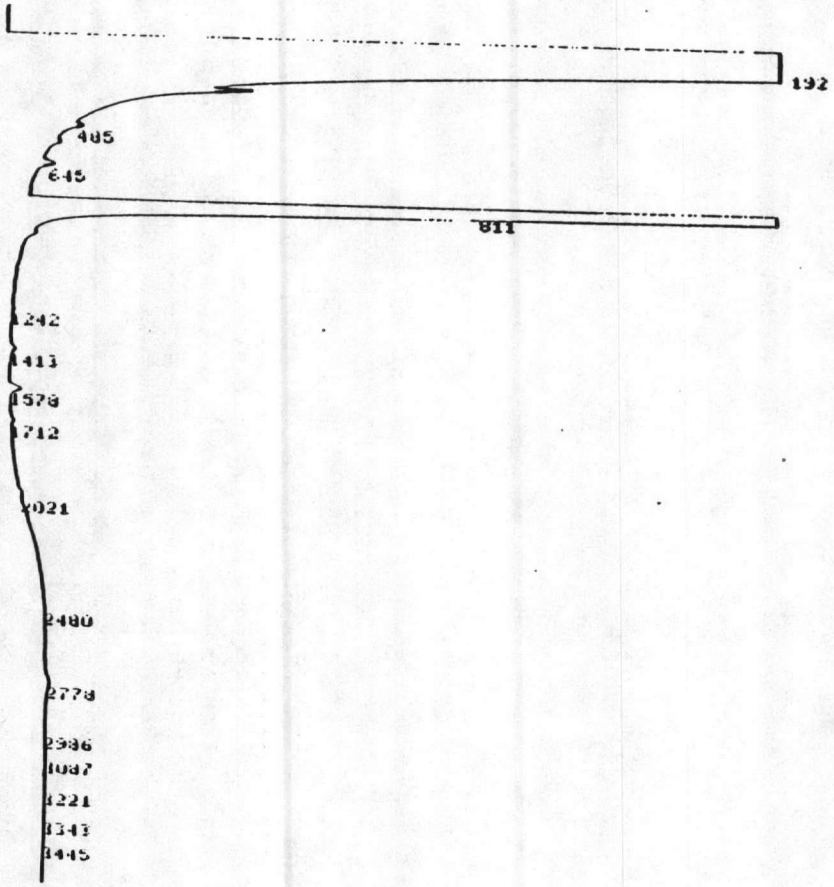
CAUTION--FLAMMABLE

****

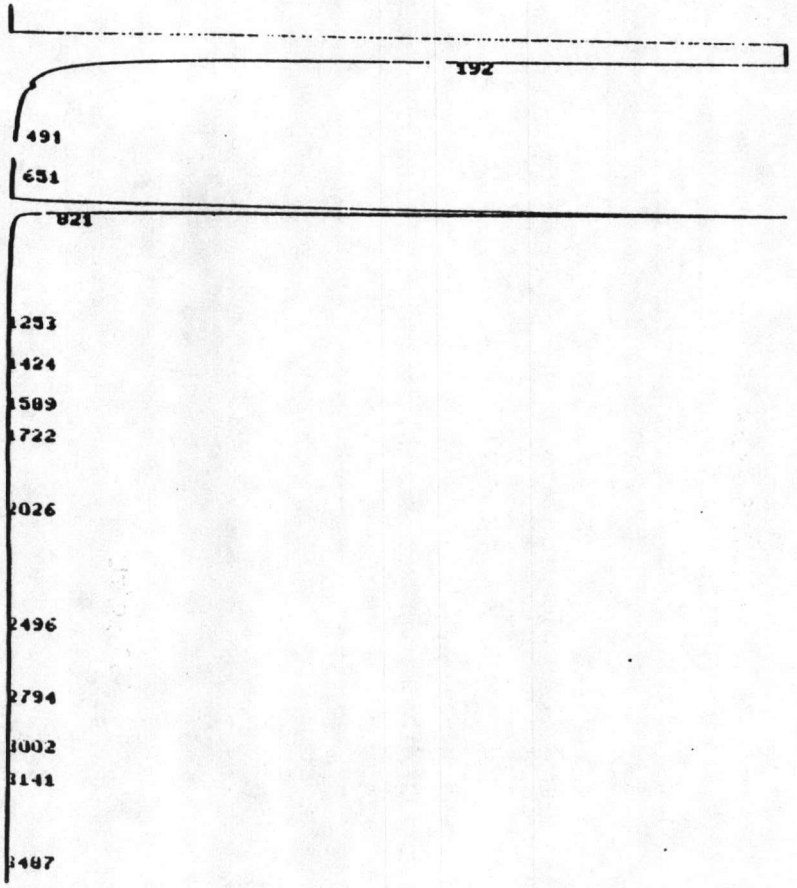
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



trans-1,2-Dichloroethylene

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Methylene chloride

SYNONYMS: Dichloromethane
Methylene dichloride
Methylene bichloride
NCI-C50102

CAS NUMBER: 75-09-2

MOLECULAR FORMULA: CH_2Cl_2

REPOSITORY NUMBER: E-000042

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10000 ± 1000 µg/mL

STANDARD CODE: 4202

DATE PREPARED: 15 DECEMBER 1981

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use. Keep out oxygen.

****

COMPOUND DATA

SOURCE: Burdick and Jackson

CATALOG NUMBER: Not Available

LOT NUMBER: AD398

PURITY: QAS >99%

****

HAZARDS

NIOSH REGISTRY NUMBER: PA 8050000

HAZARDS: Irritant, Toxic, Narcotic,
Hazardous Decomposition Products FLAMMABLE (METHANOL)

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.

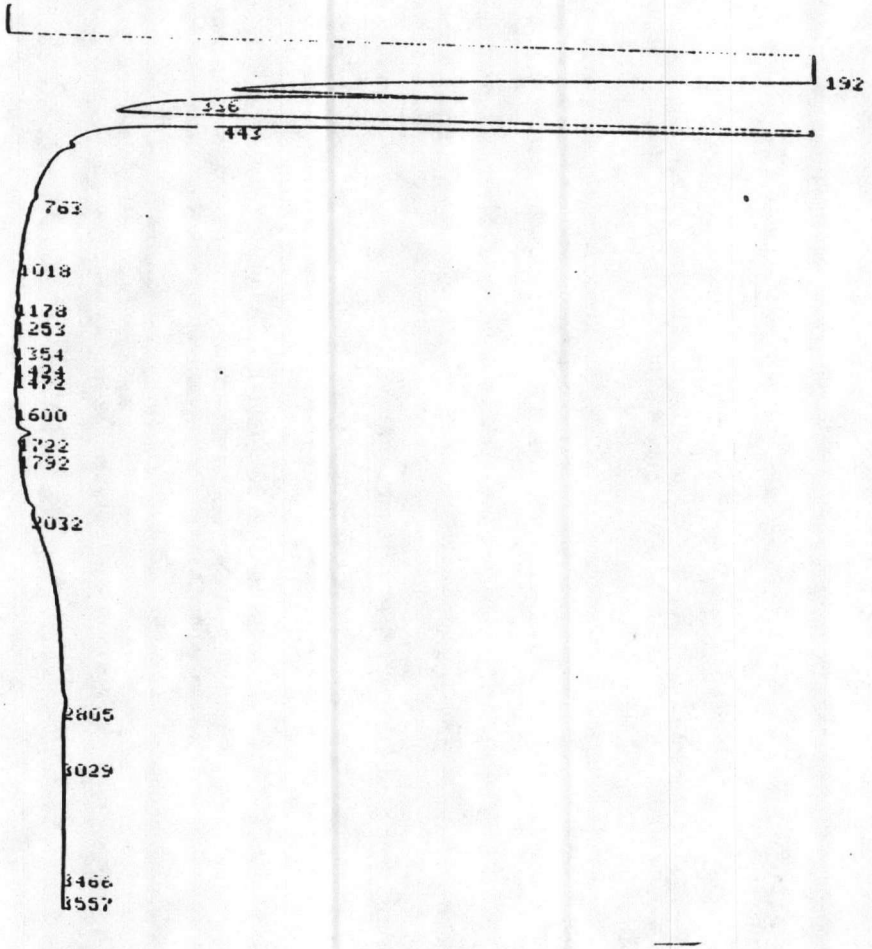
CAUTION--MILD NARCOTIC

****

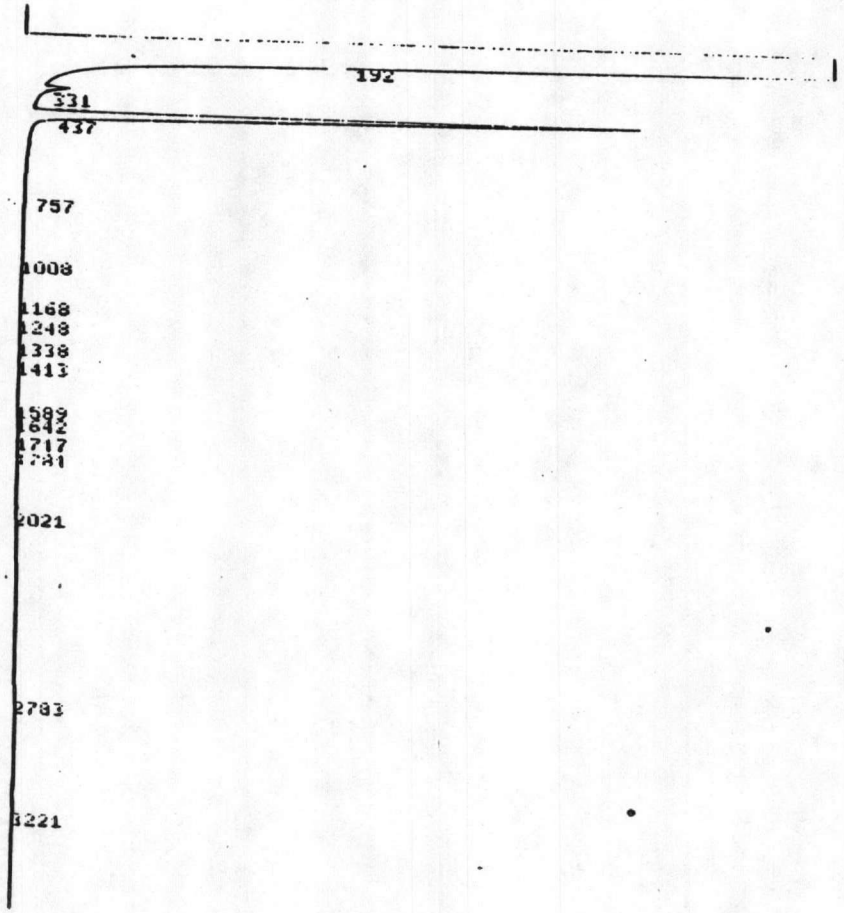
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



Methylene chloride

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

IDENTIFIERS

COMPOUND NAME: Tetrachloroethylene

SYNONYMS: Ankilostin, Carbon bichloride, Didakene, Ethylene tetrachloride, Perawin, Perchloroethylene, Telralax, Tetracap, Tetropil, Perclene, Antisel, Tetlen, Tetrachloroethane

CAS NUMBER: 127-18-4

MOLECULAR FORMULA: C_2Cl_4

REPOSITORY NUMBER: E-000083

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10000 ± 1000 µg/mL

STANDARD CODE: 8302

DATE PREPARED: 19 OCTOBER 1982

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use. Keep away from moisture and alkalies and alkaline earth metals.

****

COMPOUND DATA

SOURCE: Aldrich

CATALOG NUMBER: 15,499-7

LOT NUMBER: 120967

PURITY: >99% (QAS)

Reference Chromatograms:

EPA Method 601

(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: KX 3850000

HAZARDS: Carcinogen--Oral, Mouse-Conclusive; TOXIC; FLAMMABLE (METHANOL)

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

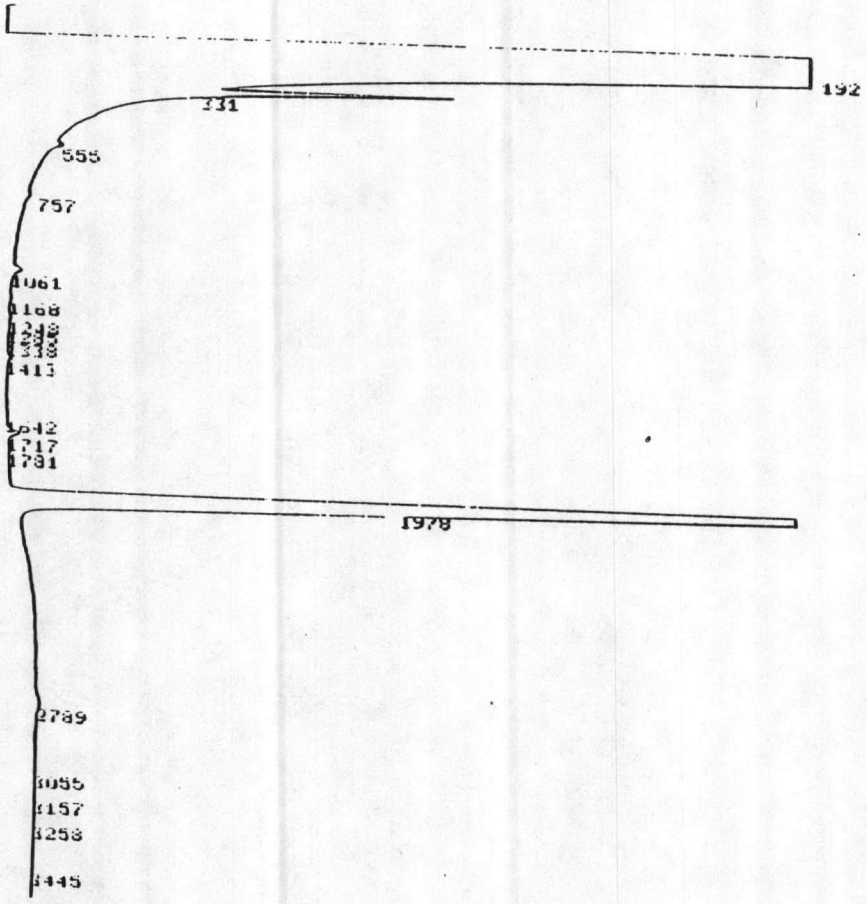
****

For comments or questions concerning these standards please contact:

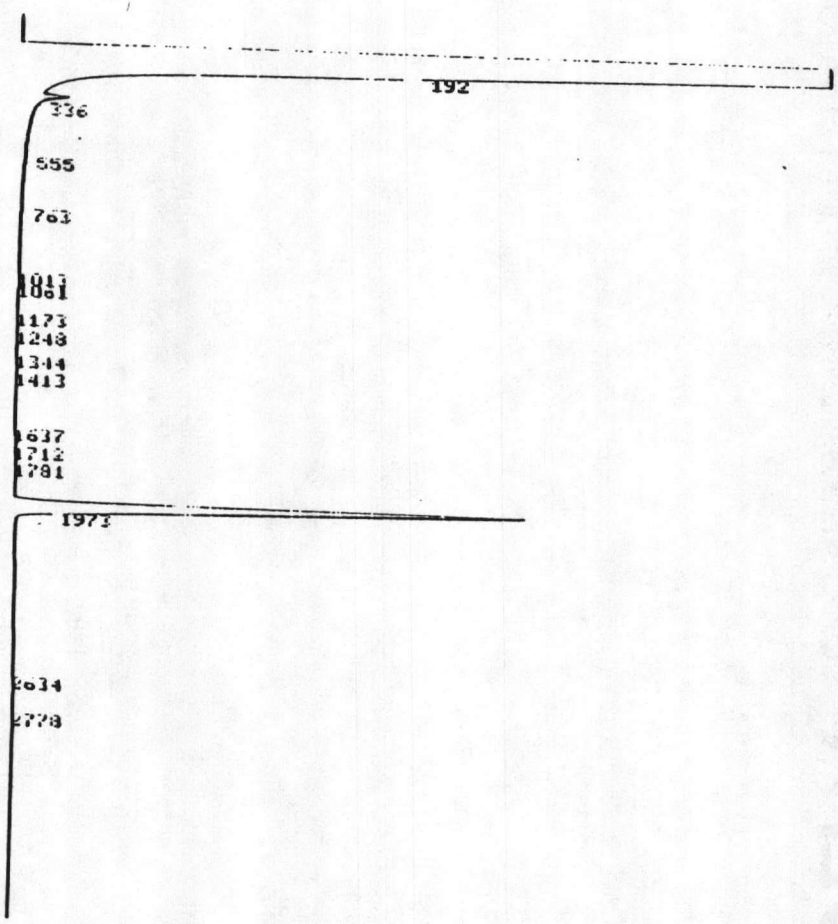
Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

Rev. 02/83

HIGH ATTENUATION



LOW ATTENUATION



Tetrachloroethylene

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Toluene

SYNONYMS: Methylbenzene, Toluol, Phenylmethane, Antisal 1a, Methacide

CAS NUMBER: 108-88-3

MOLECULAR FORMULA: C_7H_8

REPOSITORY NUMBER: EC-000084-01

STANDARD SOLUTION

CONCENTRATION: 10,000 ± 1000 µg/mL*

SOLVENT: Methanol

STANDARD CODE: 84-01-05

DATE PREPARED: 11 July 84

Reference Chromatogram (See Reverse Side)

STORAGE & PRESERVATION: Store at <5°C; transfer to tightly sealed glass vial after opening; Use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

PURITY

PURITY ASSAY OF NEAT COMPOUND: QAS 99.8%

*Concentration of the standard solution was corrected for purity at the time the solution was prepared

HAZARDS

NIOSH REGISTRY NUMBER: XS5250000

LD_{50}: Oral Rat 500 mg/kg

TOXIC EXPOSURE ROUTES: Inhalation. Ingestion. Intraperitoneal.

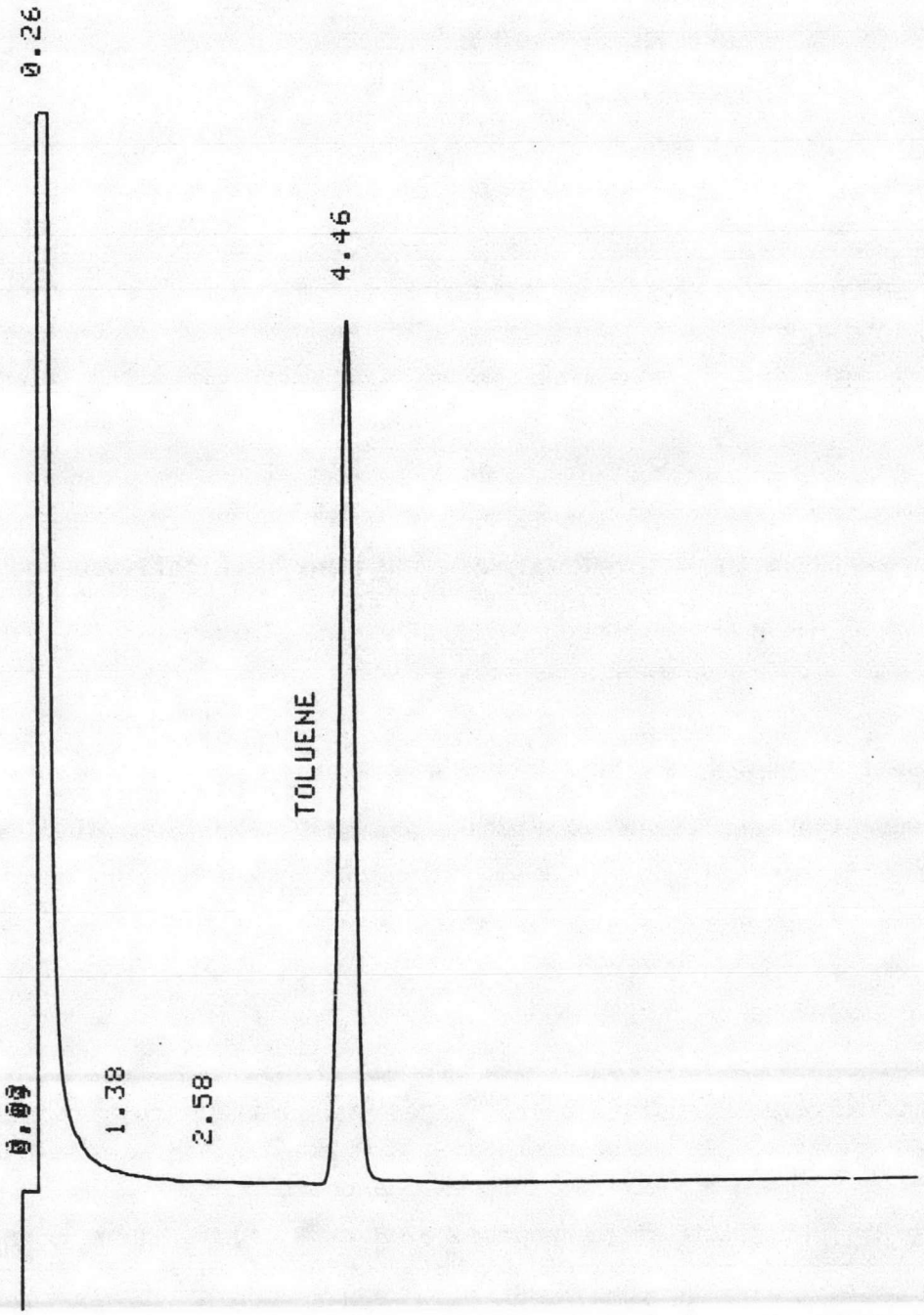
HAZARDS: Toxic. Moderately flammable. Can cause Central Nervous System effects (narcotic).

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

For comments or questions concerning those standards please contact:

Quality Assurance Branch
U.S. Environmental Protection Agency-EMSL
26 West St. Clair Street
Cincinnati, OH 45268

(513) 684-7327



Toluene
EPA Reference Method 602
Column: 1% SP-1000

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Trichloroethylene

SYNONYMS: Triline, Vestriel, Fluate, Triethylene, Chlorilen, Narcogen

$Cl_2C=CHCl$

CAS NUMBER: 79-01-06

MOLECULAR FORMULA: C_2HCl_3

REPOSITORY NUMBER: E-000085-01

STANDARD SOLUTION

CONCENTRATION: 10,000 ± 1000ug/mL*

Reference Chromatogram (see reverse side)

SOLVENT: Methanol

STANDARD CODE: 85-01-04

DATE PREPARED: 23 April 84

STORAGE & PRESERVATION: Store at -20°C; protect from light; transfer to tightly sealed vial with Teflon lined septum or cap. Allow to equilibrate to room temperature before use.

PURITY

PURITY ASSAY OF NEAT COMPOUND: QAS 99.5%

*Concentration of the standard solution was corrected for purity at the time the solution was prepared

HAZARDS

NIOSH REGISTRY NUMBER: KX4550000

LD_{50}: 4920 mg/kg oral-rat

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

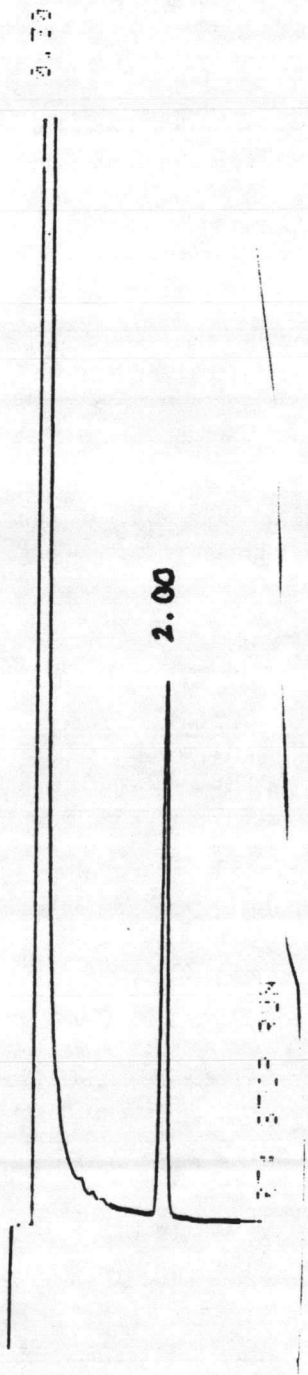
HAZARDS: Carcinogenic assay: Animal positive, moderate exposures can cause symptoms similar to alcohol inebriation; Higher concentrations can have a narcotic effect; Flammable (MEOH)

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glovebox. Do not breathe vapors; respirator required.

For comments or questions concerning those standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency
26 West St. Clair Street
Cincinnati, OH 45268
(513) 684-7327

Cl



Trichloroethylene
EPA Reference Method 601
Column: 1% SP-1000/Carbopack B

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Bromoform

SYNONYMS: Tribromomethane
Methenyl tribromide

CAS NUMBER: 75-25-2

MOLECULAR FORMULA: $CHBr_3$

REPOSITORY NUMBER: E-000212

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10,000 ± 1000 µg/mL

STANDARD CODE: 21202

DATE PREPARED: 25 APRIL 83

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly selaed vial after opening; use Teflon-lined septum or cap.

****

COMPOUND DATA

SOURCE: Aldrich

CATALOG NUMBER: 13,294-2

LOT NUMBER: 032397 DE

PURITY: QAR 97.9

Reference Chromatograms:
EPA Method 624
(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: PB 5600000

HAZARDS: Toxic, Lachrymator, Flammable (Methanol)

TOXIC EXPOSURE ROUTES: Absorption, Ingestion, Inhalation

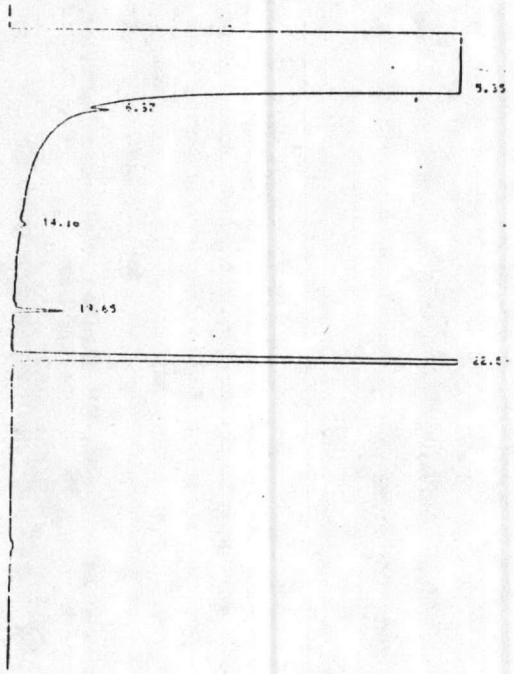
PERSONNEL PROTECTION: Wear polyvinyl chloride gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors. Respirator required.
CAUTION: Lachrymator

****

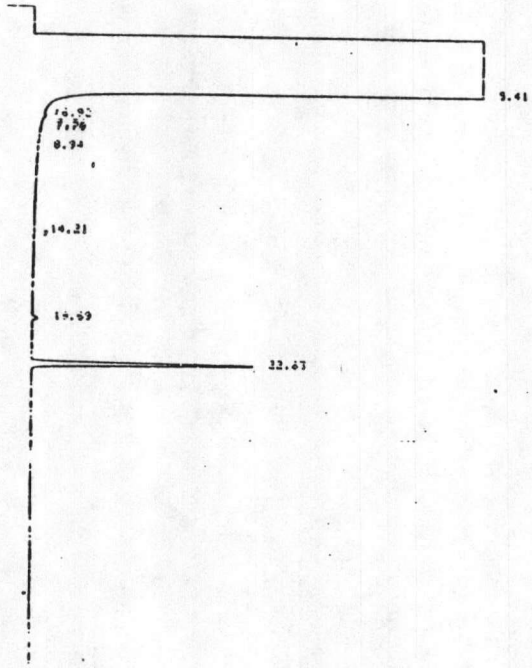
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



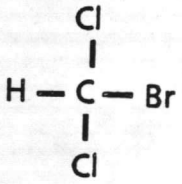
Bromoform

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME:	Dichlorobromomethane
SYNONYMS:	Bromodichloromethane
CAS NUMBER:	75-27-4
MOLECULAR FORMULA:	$CHBrCl_2$
REPOSITORY NUMBER:	EC-000046-02



STANDARD SOLUTION

CONCENTRATION:	10,000 ± 1,000 µg/mL*
SOLVENT:	Methanol
STANDARD CODE:	46-02-01
DATE PREPARED:	5 June 84

Reference Chromatogram (See Reverse Side)

STORAGE & PRESERVATION: Store at ≤5°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

PURITY

PURITY ASSAY OF NEAT COMPOUND: QAS 99.1%

*Concentration of the standard solution was corrected for purity at the time the solution was prepared.

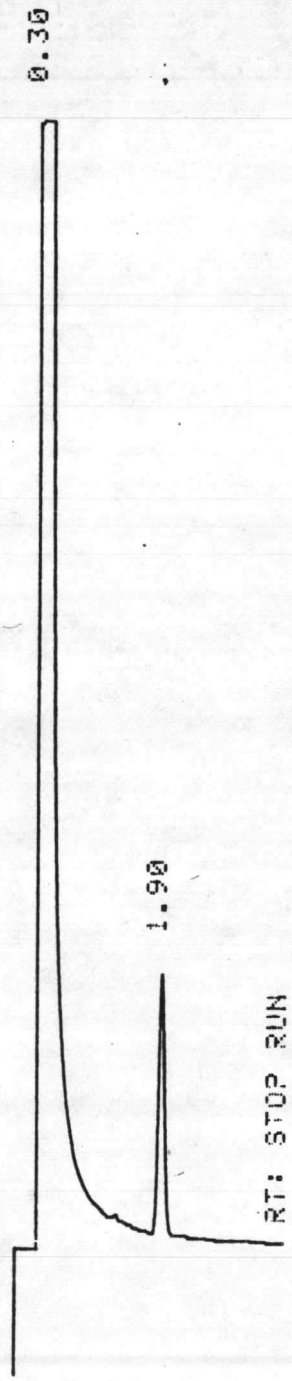
HAZARDS

NIOSH REGISTRY NUMBER:	PA5310000
LD_{50}:	Not Available
TOXIC EXPOSURE ROUTES:	Skin Absorption, Ingestion, Inhalation.
HAZARDS:	Toxic, Skin irritant, Very hazardous decomposing product Flammable (MeOH).
PERSONNEL PROTECTION:	Wear impervious gloves and laboratory clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

For comments or questions concerning those standards please contact:

Quality Assurance Branch
U.S. Environmental Protection Agency-EMSL
26 West St. Clair Street
Cincinnati, OH 45268

(513) 684-7327



Dichlorobromomethane
EPA Reference Method 601
Column: 1% SP-1000/CarbopackB

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Chloroform

SYNONYMS: Formyl trichloride, Methane trichloride, Trichloromethane, Methenyltrichloride, NCI-C02686, Trichloroform, [methane, trichloro-]

CAS NUMBER: 67-66-3

MOLECULAR FORMULA: $CHCl_3$

REPOSITORY NUMBER: E-000021

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10000 ± 1000 µg/mL

STANDARD CODE: 2103

DATE PREPARED: 03 MAY 1982

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Burdick and Jackson

CATALOG NUMBER: Not Available

LOT NUMBER: AD 206

PURITY: QAS > 99%

Reference Chromatograms:

EPA Method 601

(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: FS 9100000

HAZARDS: Carcinogen--A Highly Suspect Human Carcinogen
Toxic, Contact Irritant, Hazardous Decomposition Products
FLAMMABLE (METHANOL)

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

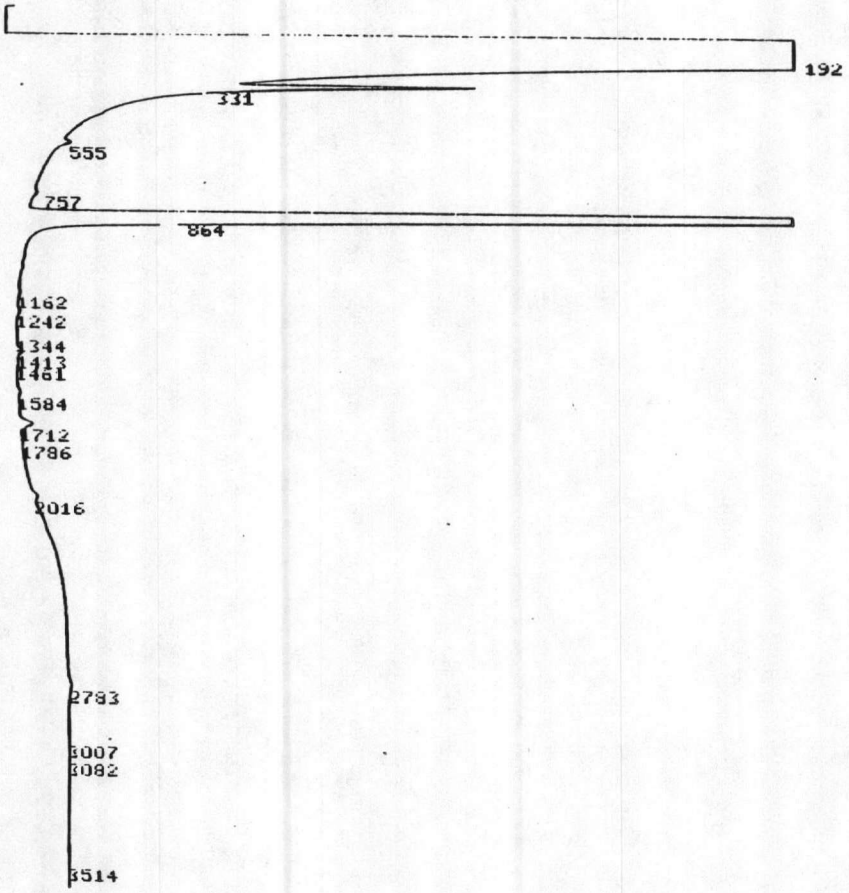
PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.
CAUTION--SUSPECT HUMAN CARCINOGEN

****

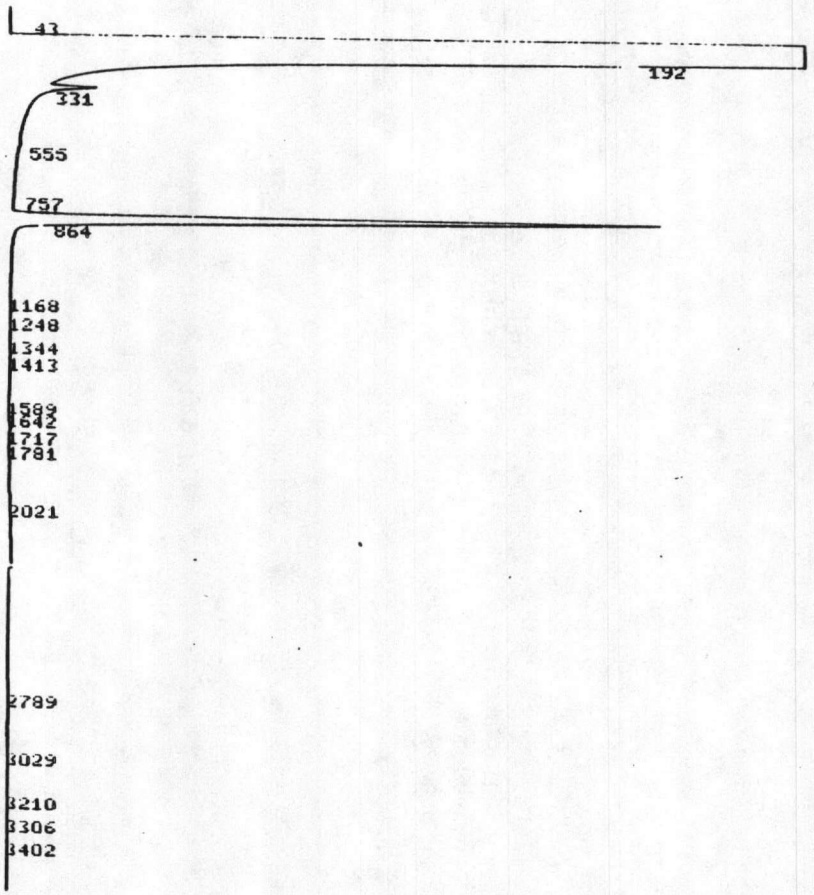
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



Chloroform

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: 4-Chlorophenol

SYNONYMS: p-Chlorophenol
4-Chloro-1-hydroxybenzene

CAS NUMBER: 106-48-9

MOLECULAR FORMULA: C_6H_5ClO

REPOSITORY NUMBER: EV-000183

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 5000 ± 500 µg/mL

STANDARD CODE: 18303

DATE PREPARED: 10MAR82

STORAGE AND PRESERVATION: Store at ≤5°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Aldrich

CATALOG NUMBER: 18,578-7

LOT NUMBER: 3225BECE

PURITY: QAS > 99%

Reference Chromatograms:
EPA Method 625
(See Reverse Side)

****

HAZARDS

HAZARDS: Irritant, Toxic, Flammable (MeOH)

NIOSH REGISTRY NUMBER: SK2800000

TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (MeOH), Skin Absorption

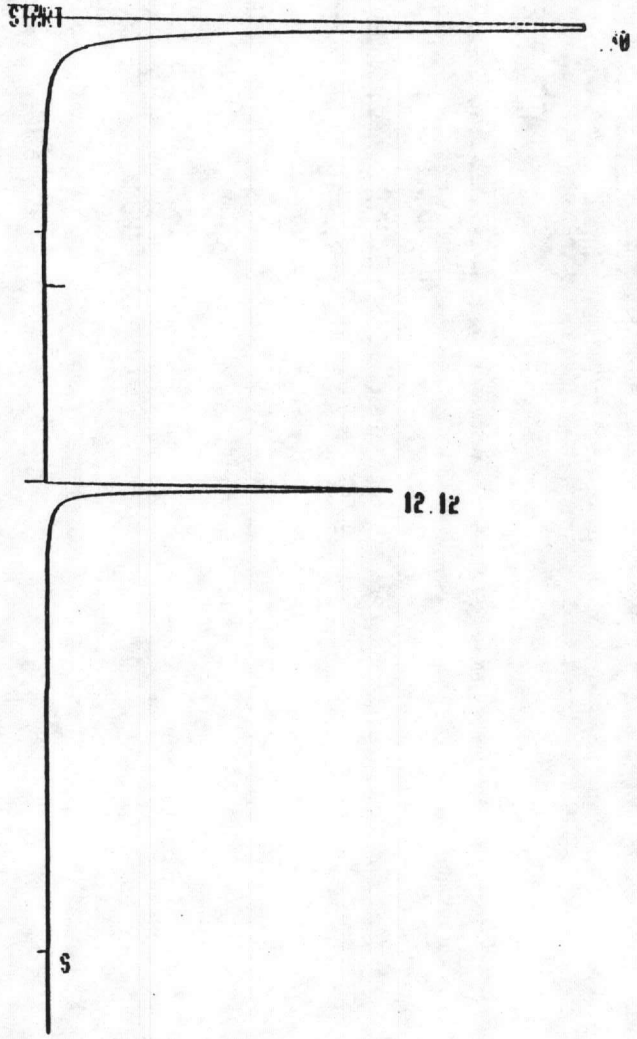
PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.

****

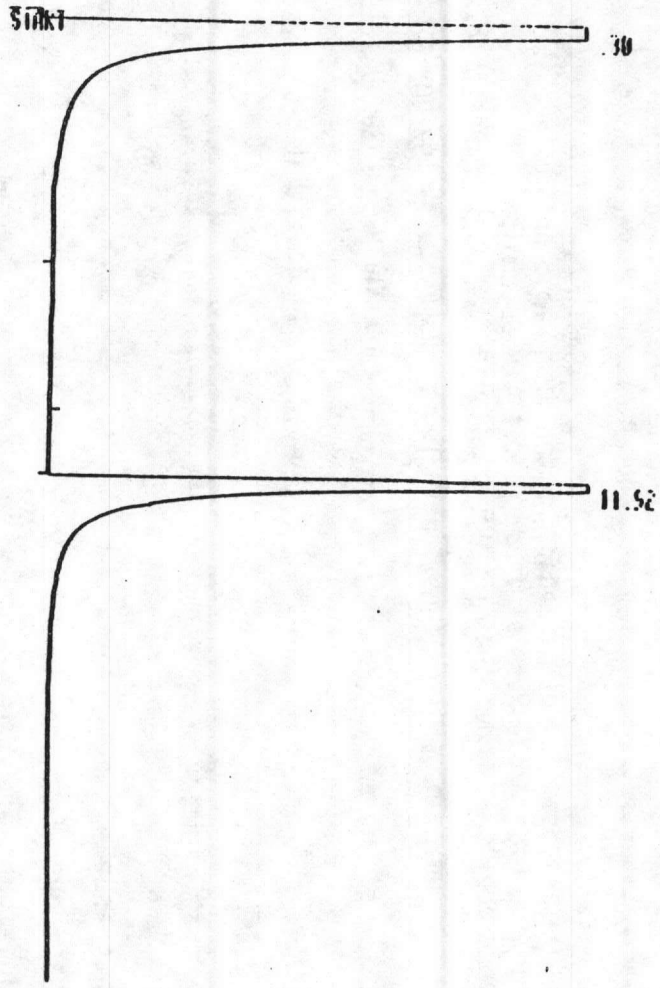
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



4-Chlorophenol

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: PCB 1242

SYNONYMS: Arochlor 1242
Aroclor 1242
Polychlorinated biphenyl 1242
Chlorodiphenyl 42% Cl

CAS NUMBER: 53469-21-9

MOLECULAR FORMULA: Not Specified

REPOSITORY NUMBER: E-000104

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 5000 ± 500 µg/mL

STANDARD CODE: 10402

DATE PREPARED: 03SEP81

STORAGE AND PRESERVATION: Store at room temperature; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Analabs

CATALOG NUMBER: RCS-120

LOT NUMBER: E168-1

PURITY: Isomer Mixture

Reference Chromatograms:
EPA Method 604
(See Reverse Side)

****

HAZARDS

HAZARDS: Suspected Carcinogen, Irritant, Toxic to Liver, Flammable (MeOH)

NIOSH REGISTRY NUMBER: TQ1356000

TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (MeOH), Skin Absorption

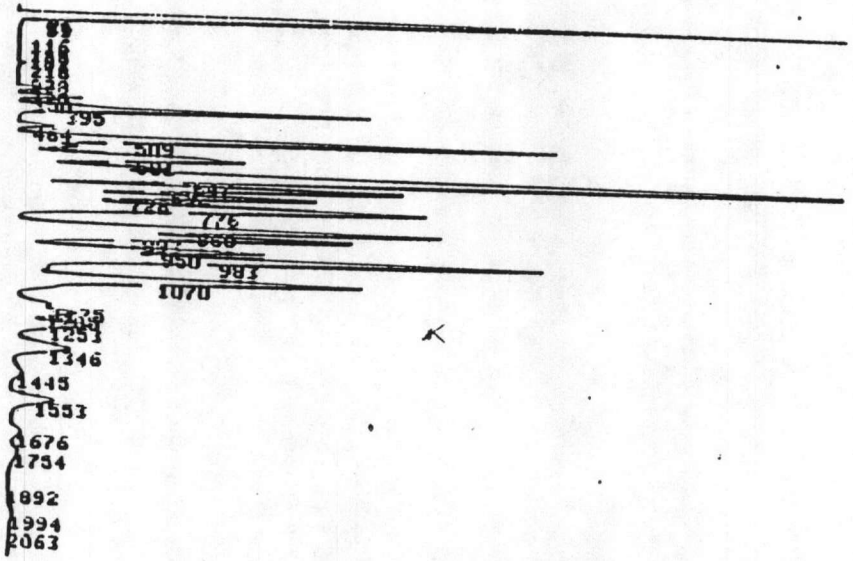
PERSONNEL PROTECTION: Wear neoprene, Buna-N, or Viton gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

Rev. 02/83



PCB 1242

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Arochlor 1254

SYNONYMS: PCB-1254 PCB 1254 PCB
Polychlorinated biphenyl 1254
Arochlor 1254
Chlorodiphenyl (54% Cℓ)

CAS NUMBER: 27323-18-8

MOLECULAR FORMULA: Mixtures

REPOSITORY NUMBER: E-000105

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 5000 ± 500 µg/mL

STANDARD CODE: 10502

DATE PREPARED: 21 SEPTEMBER 81

STORAGE AND PRESERVATION: Store at ≤5°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Analabs

CATALOG NUMBER: RCS-088

LOT NUMBER: 2147A

PURITY: Isomeric mixture - Technical Material

Reference Chromatograms:
EPA Metho 608
(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: TQ 136000

HAZARDS: Carcinogen--Conclusively Carcinogen in Humans, Teratogenic, Highly Toxic FLAMMABLE (METHANOL)

TOXIC EXPOSURE ROUTES: Inhalation, Absorption, Ingestion

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.

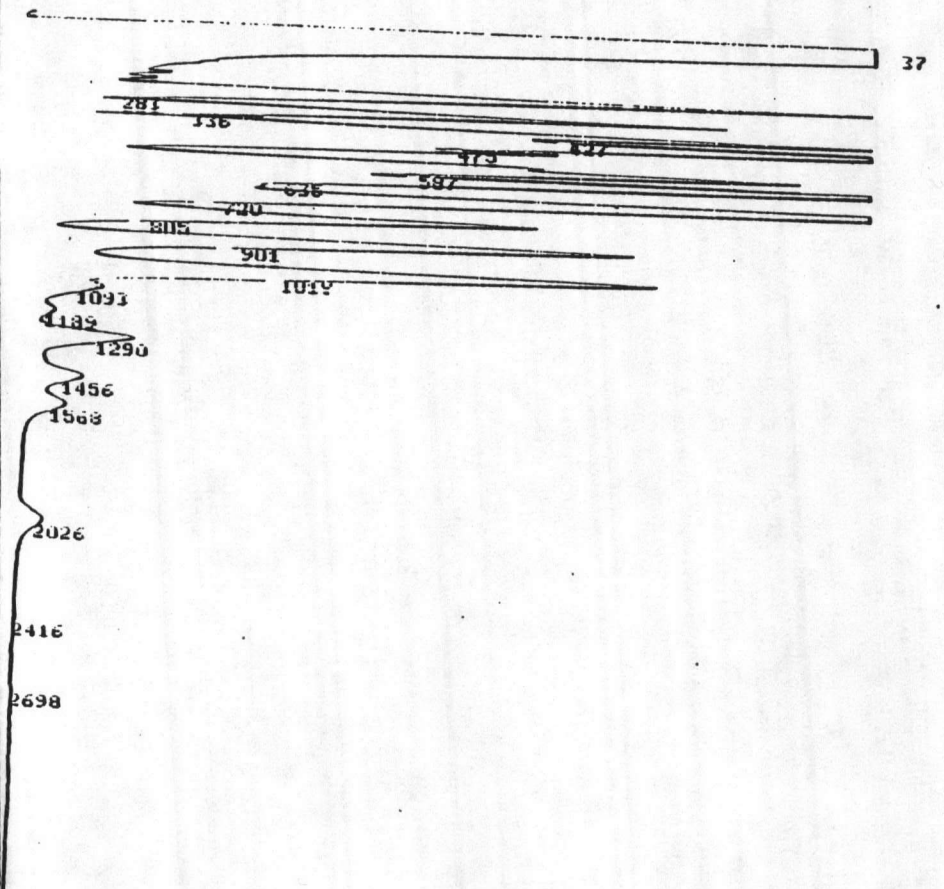
CAUTION--HUMAN CARCINOGEN AND TERATOGEN

****

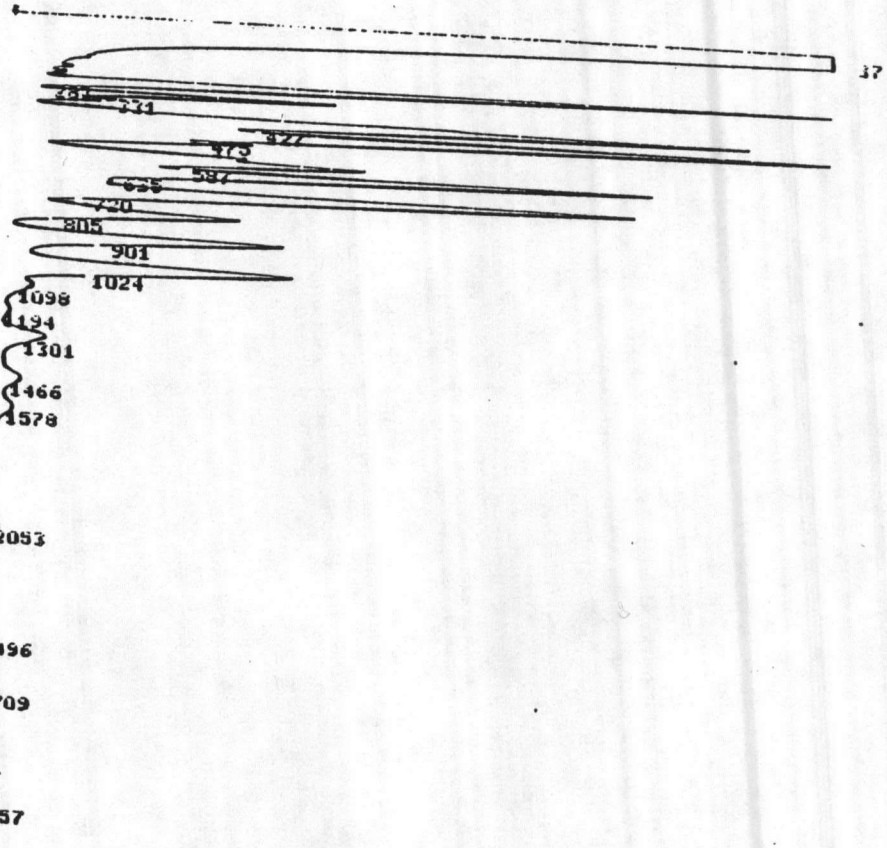
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



PCB 1254
(Aroclor 1254)

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: PCB-1248

SYNONYMS: Arochlor 1248 Aroclor 1248
Polychlorinated biphenyl 1248
Chlorodiphenyl (48% Cℓ)
PCB 1248

CAS NUMBER: 12672-29-6

MOLECULAR FORMULA: Mixtures

REPOSITORY NUMBER: E-000108

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 5000 ± 250 µg/mL

STANDARD CODE: 10802

DATE PREPARED: 15 SEPTEMBER 81

STORAGE AND PRESERVATION: Store at ≤5°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Chem Service

CATALOG NUMBER: 2825-E

LOT NUMBER: Not Available

PURITY: Technical (QAT)

Reference Chromatograms:
EPA Method 608
(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: TQ 1358000

HAZARDS: Carcinogen--Conclusively Carcinogen in Humans,
Teratogenic, TOXIC, Irritant,
Hazardous Decomposition Products FLAMMABLE (METHANOL)

TOXIC EXPOSURE ROUTES: Inhalation, Absorption, Ingestion

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.

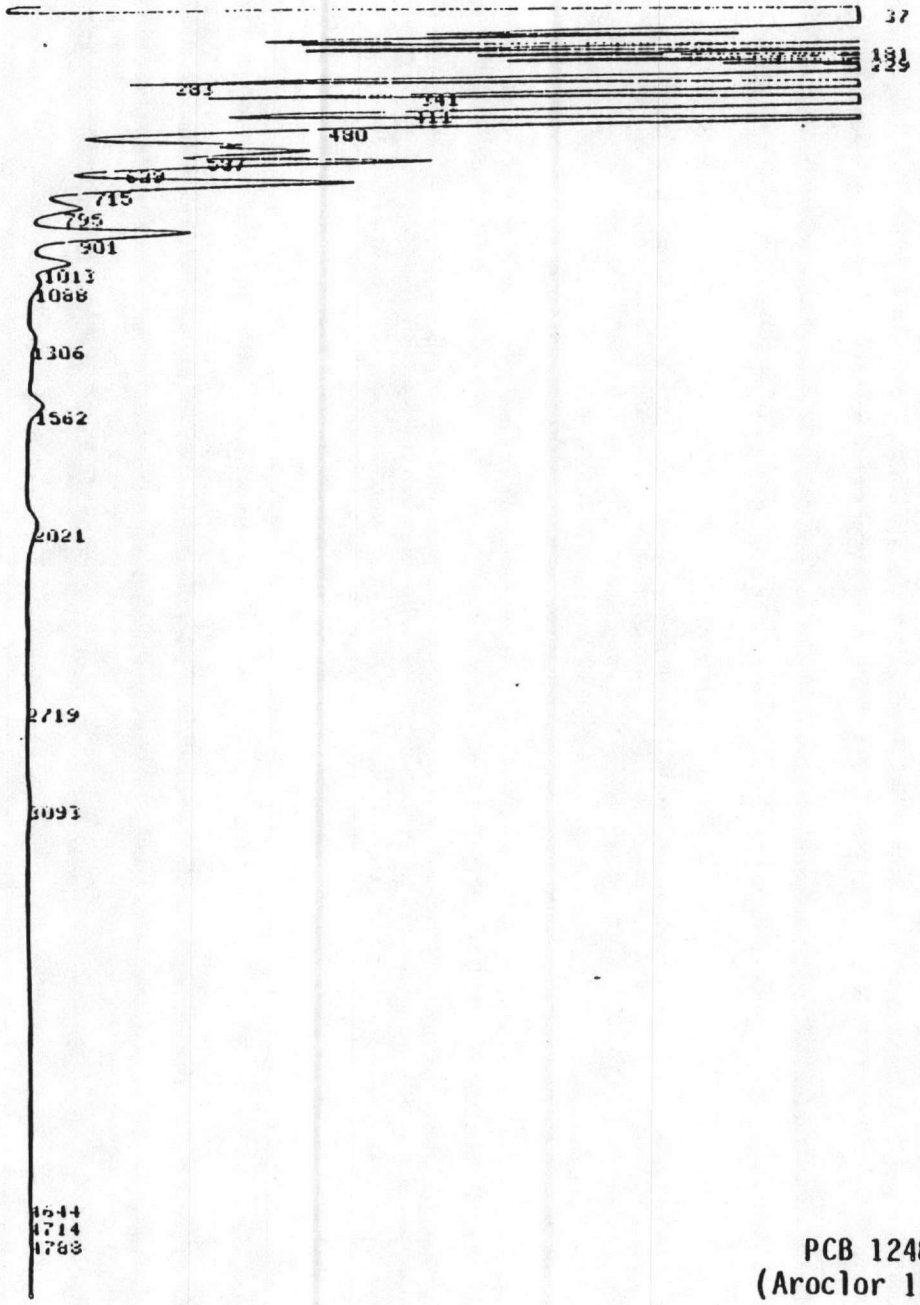
CAUTION--HUMAN CARCINOGEN, TERATOGEN

****

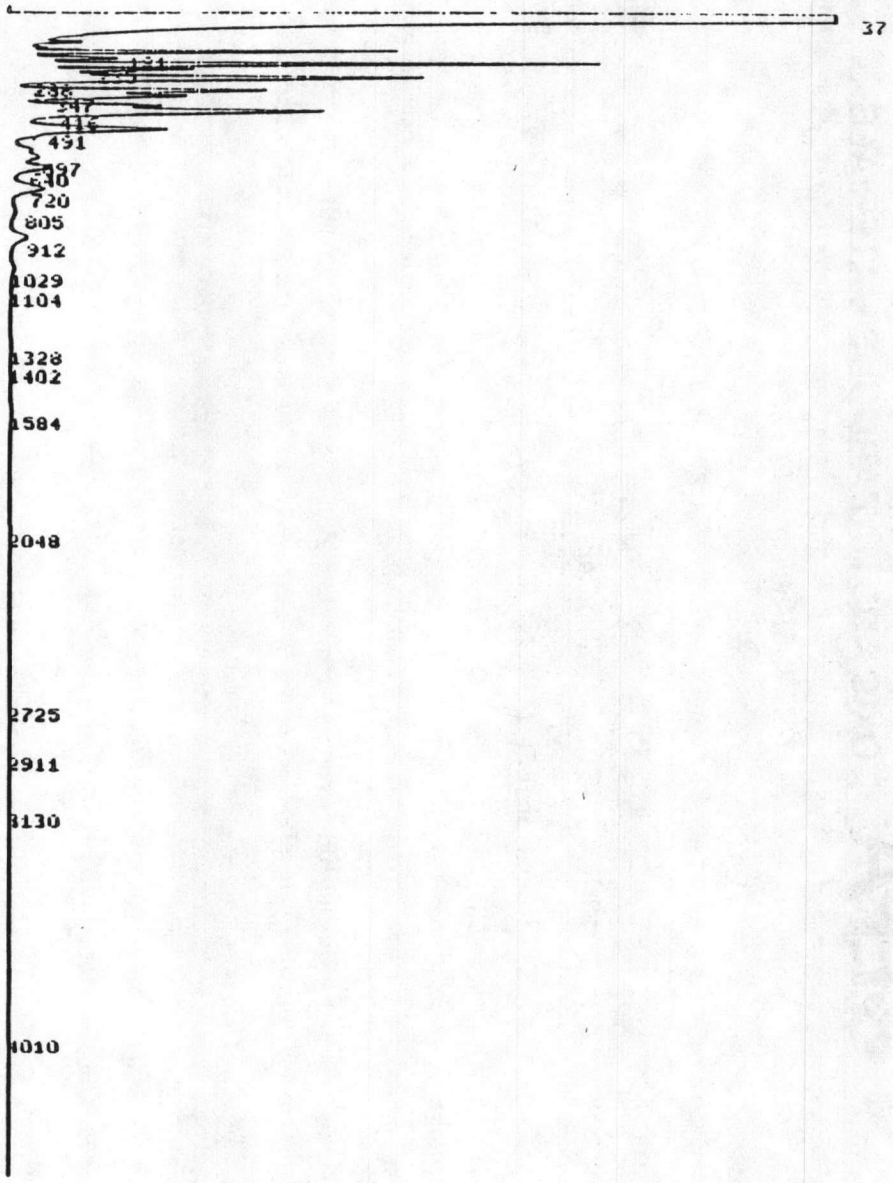
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268

HIGH ATTENUATION



LOW ATTENUATION



PCB 1248
(Aroclor 1248)

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: PCB 1260

SYNONYMS: Aroclor 1260
Chlorodiphenyl 60% Cℓ
Arochlor 1260
Polychlorinated biphenyl 1260

CAS NUMBER: 11096-82-5

MOLECULAR FORMULA: Not Specified

REPOSITORY NUMBER: E-000109

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 5000 ± 500 µg/mL

STANDARD CODE: 10902

DATE PREPARED: 31AUGUST81

STORAGE AND PRESERVATION: Store at room temperature; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Alltech

CATALOG NUMBER: Not Specified

LOT NUMBER: Not Specified

PURITY: Isomer Mixture

Reference Chromatograms:
EPA Method 625
(See Reverse Side)

****

HAZARDS

HAZARDS: Suspected Carcinogen, Toxic to Liver, Irritant, Flammable (MeOH)

NIOSH REGISTRY NUMBER: TQ1362000

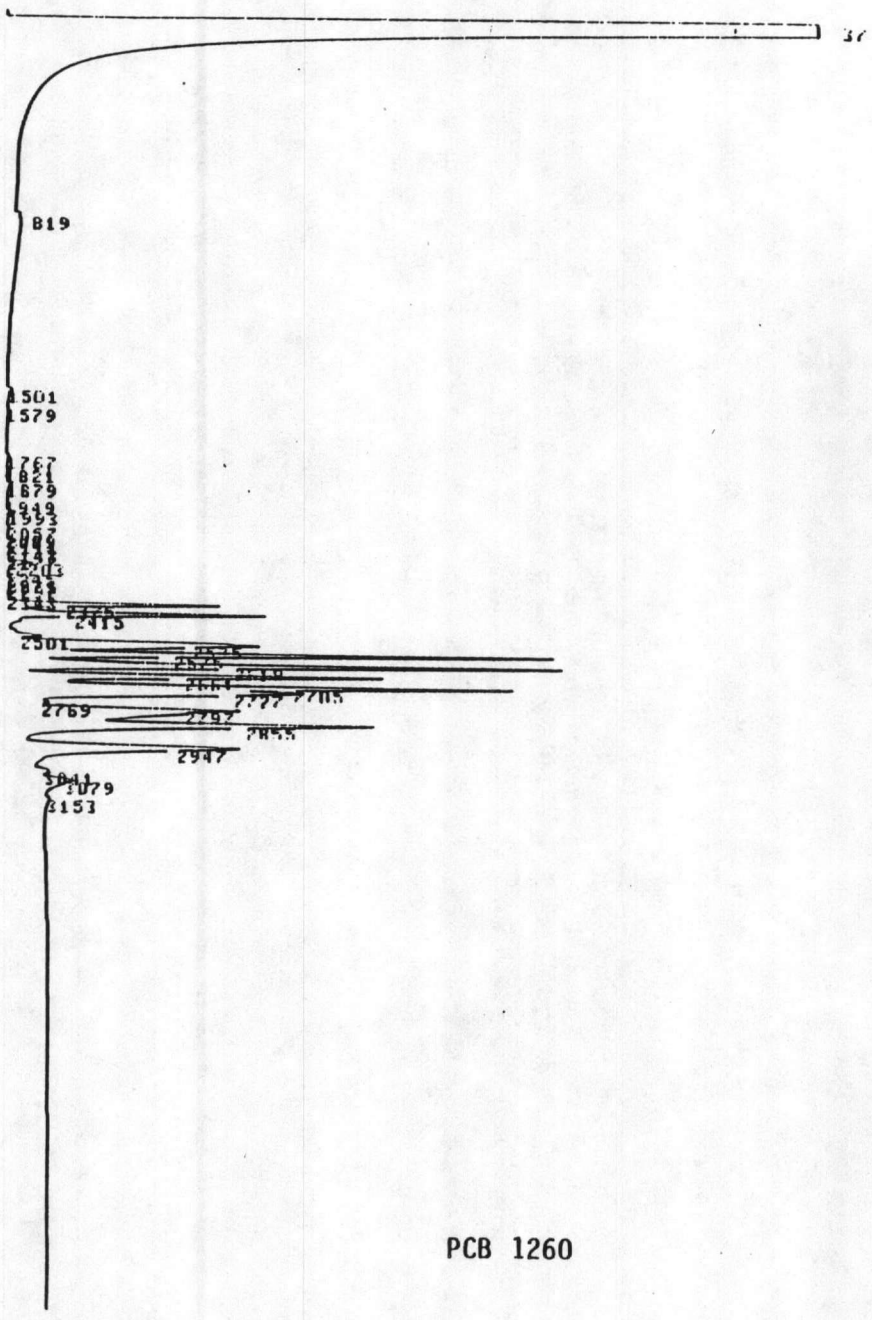
TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (MeOH), Skin Absorption

PERSONNEL PROTECTION: Wear neoprene, Buna-N or Viton gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327



PCB 1260

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: PCB 1016

SYNONYMS: Aroclor 1016
Polychlorinated biphenyl 1016
Arochlor 1016

CAS NUMBER: 12674-11-2

MOLECULAR FORMULA:

REPOSITORY NUMBER: E-000110

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 5000 ± 500 µg/mL

STANDARD CODE: 11002

DATE PREPARED: 10 AUGUST 1981

STORAGE AND PRESERVATION: Store at room temperature; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Analabs

CATALOG NUMBER: RCS-117

LOT NUMBER: E216A

PURITY: Isomer Mixture

Reference Chromatograms:
EPA Method 608
(See Reverse Side)

****

HAZARDS

HAZARDS: Suspected Carcinogen, Toxic to Liver, Flammable (MeOH)

NIOSH REGISTRY NUMBER: Not Available

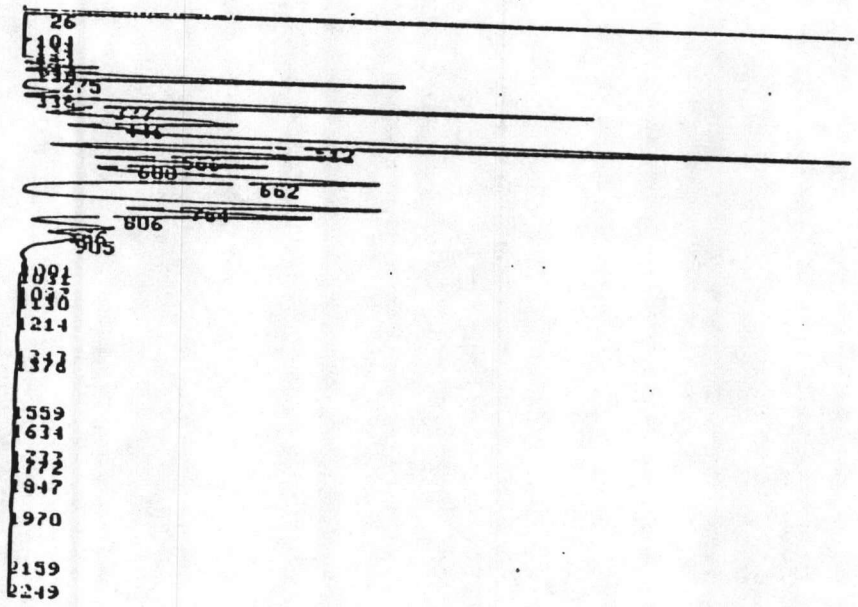
TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (MeOH), Skin Absorption

PERSONNEL PROTECTION: Wear Neoprene, Buna-N or Viton gloves, impervious laboratory apron or clothingwhile handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327


26
275
662
808
905
1214
1559
1634
1847
1970
2159
2249

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Aroclor-1016

SYNONYMS: PCB-1016
Arochlor-1016
Polychlorinated biphenyl-1016

CAS NUMBER: 12674-11-2

MOLECULAR FORMULA: Mixtures

REPOSITORY NUMBER: E-000125

****

STANDARD SOLUTION

SOLVENT: Isooctane

CONCENTRATION: 1000 ± 100 µg/mL

STANDARD CODE: 12501

DATE PREPARED: 09DEC81

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap.

****

COMPOUND DATA

SOURCE: Environmental Protection Agency, Athens, Georgia

CATALOG NUMBER: Not available

LOT NUMBER: KB-06-756

PURITY: QAT Technical Mixture

Reference Chromatograms:
EPA Method 625
(See Reverse Side)

****

HAZARDS

HAZARDS: Suspected Carcinogen, Toxic to Liver, Flammable (Isooctane)

NIOSH REGISTRY NUMBER: Not available

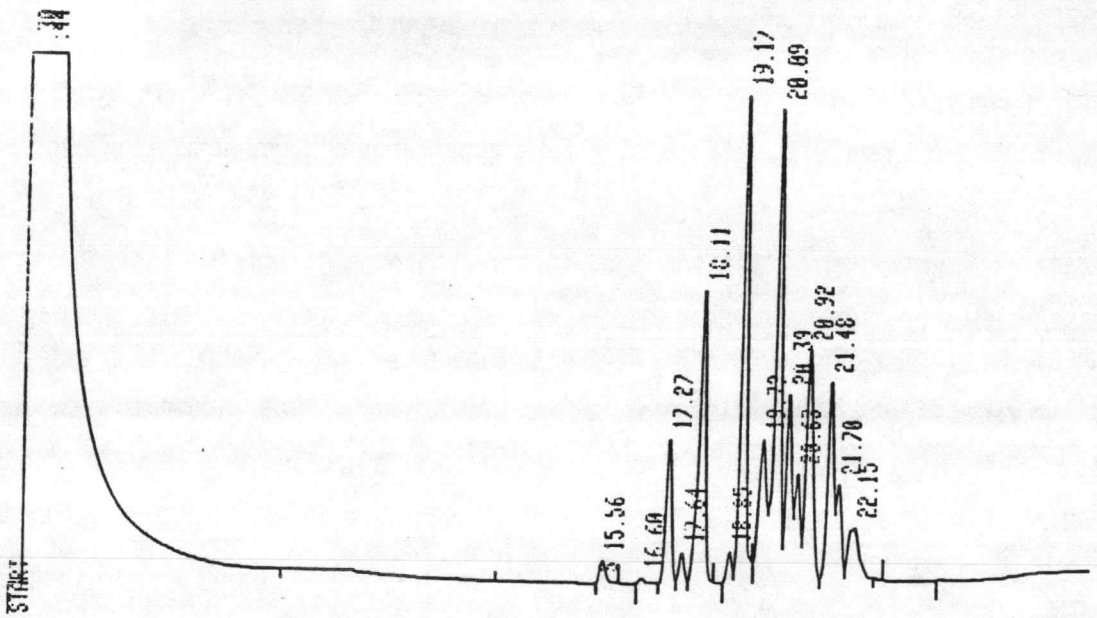
TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (Isooctane), Skin Absorption

PERSONNEL PROTECTION: Wear Viton gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327



Aroclor-1016

EPA THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Aroclor 1260

SYNONYMS: PCB 1260
Chlorodiphenyl 60% Cℓ
Arochlor 1260
Polychlorinated biphenyl 1260

CAS NUMBER: 11096-82-5

MOLECULAR FORMULA: Mixture

REPOSITORY NUMBER: E-000129

****

STANDARD SOLUTION

SOLVENT: Isooctane

CONCENTRATION: 1000 ± 100 µg/mL

STANDARD CODE: 12901

DATE PREPARED: 29DEC81

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap.

****

COMPOUND DATA

SOURCE: U.S. Environmental Protection Agency, Athens, Georgia

CATALOG NUMBER: Not specified

LOT NUMBER: Not specified

PURITY: Isomer Mixture

Reference Chromatograms:
EPA Method 625
(See Reverse Side)

****

HAZARDS

HAZARDS: Suspected Carcinogen, Toxic to Liver, Irritant, Flammable (MeOH)

NIOSH REGISTRY NUMBER: TQ1362000

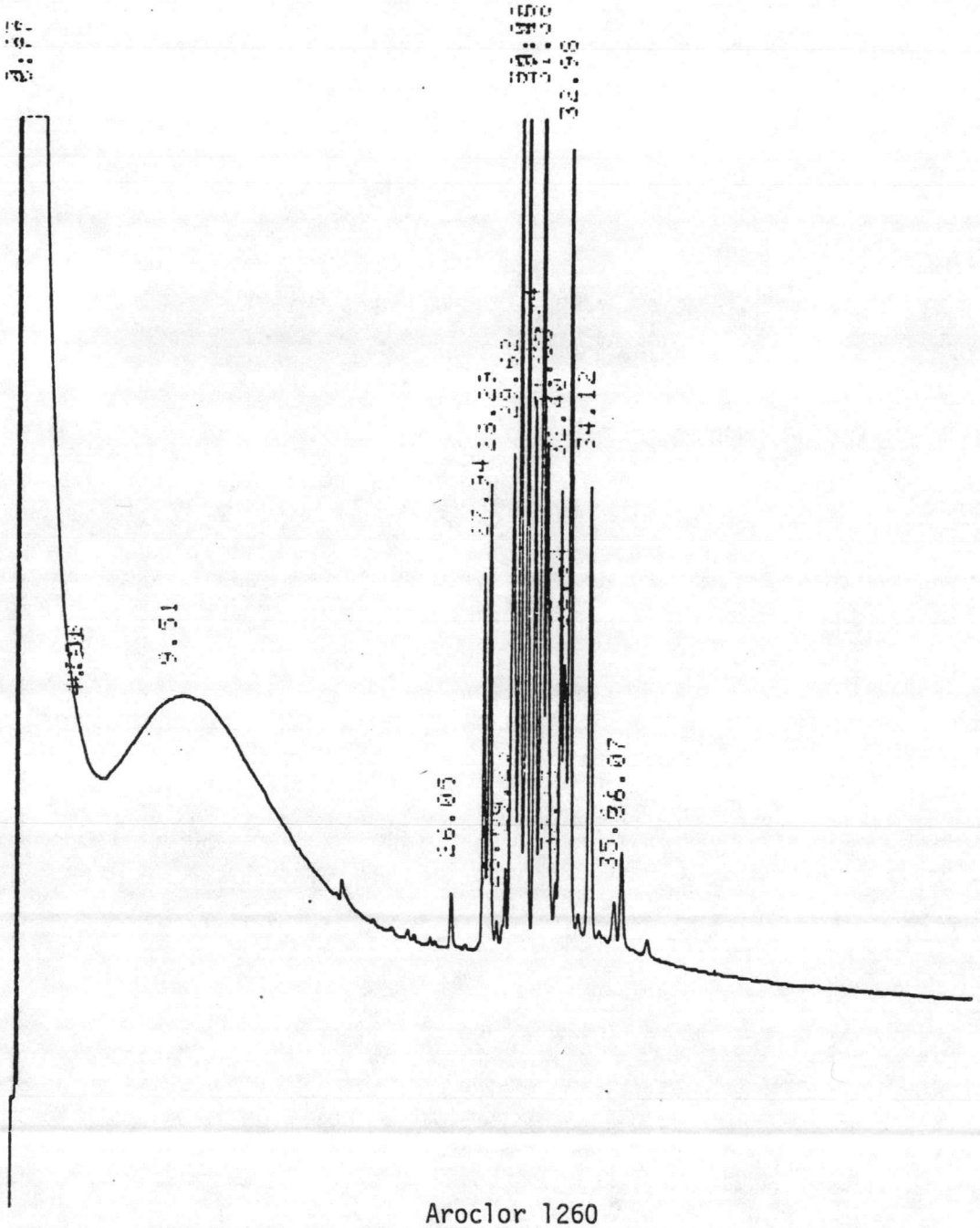
TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (MeOH), Skin Absorption

PERSONNEL PROTECTION: Wear Viton gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327



Aroclor 1260

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Aroclor 1242

SYNONYMS: Arochlor 1242
PCB 1242
Polychlorinated biphenyl 1242
Chlorodiphenyl 42% Cℓ

CAS NUMBER: 53469-21-9

MOLECULAR FORMULA: Mixture

REPOSITORY NUMBER: E-000132

****

STANDARD SOLUTION

SOLVENT: Isooctane

CONCENTRATION: 1000 ± 100 µg/mL

STANDARD CODE: 13201

DATE PREPARED: 10DEC81

STORAGE AND PRESERVATION: Store at room temperature; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap.

****

COMPOUND DATA

SOURCE: U.S. Environmental Protection Agency, Athens, Georgia

CATALOG NUMBER: Not available

LOT NUMBER: Not available

PURITY: Isomer Mixture

Reference Chromatograms:
EPA Method 625
(See Reverse Side)

****

HAZARDS

HAZARDS: Suspected Carcinogen, Irritant, Toxic to Liver, Flammable (isooctane)

NIOSH REGISTRY NUMBER: TQ1356000

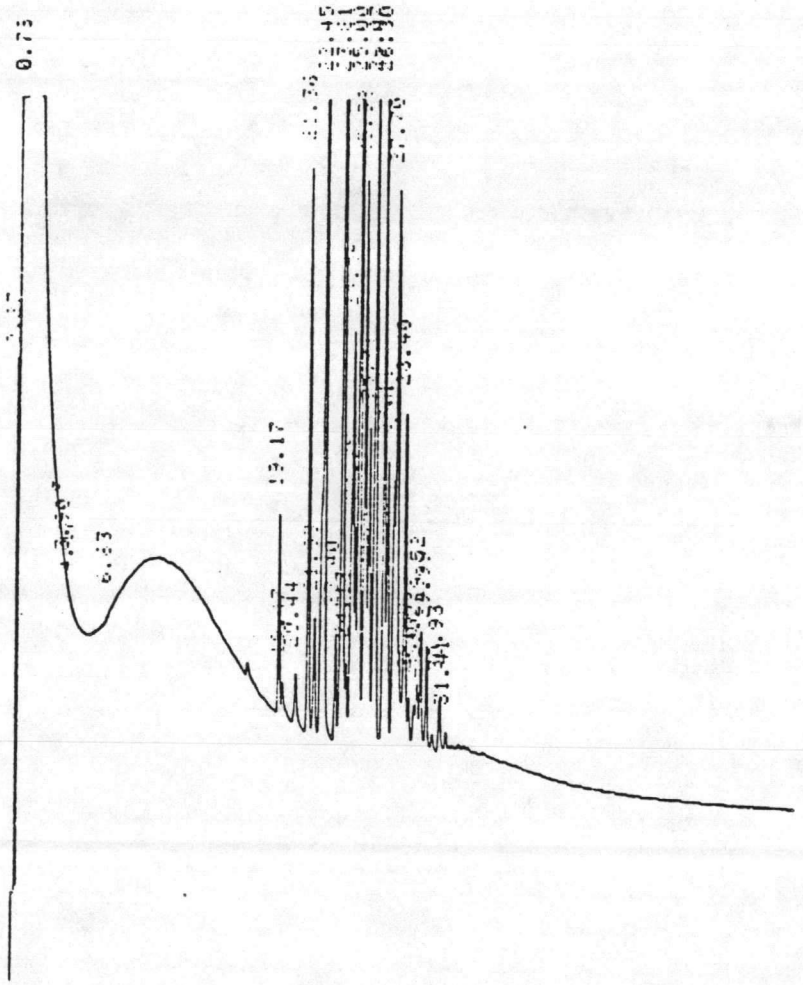
TOXIC EXPOSURE ROUTES: Ingestion, Inhalation (isooctane), Skin Absorption

PERSONNEL PROTECTION: Wear Viton gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327



Aroclor 1242

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Aroclor 1254

SYNONYMS: PCB-1254 PCB 1254 PCB
Polychlorinated biphenyl 1254
Arochlor 1254
Chlorodiphenyl (54% Cl)

CAS NUMBER: 27323-18-8

MOLECULAR FORMULA: Mixtures

REPOSITORY NUMBER: E-000135

****

STANDARD SOLUTION

SOLVENT: Isooctane

CONCENTRATION: 1000 ± 100 µg/mL

STANDARD CODE: 13501

DATE PREPARED: 21DEC81

STORAGE AND PRESERVATION: Store at room temperature; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap.

****

COMPOUND DATA

SOURCE: U.S. Environmental Protection Agency, Athens, Georgia

CATALOG NUMBER: Not available

LOT NUMBER: AK-38

PURITY: Technical Grade (QAT)

Reference Chromatograms:
EPA Method 625
(See Reverse Side)

****

HAZARDS

HAZARDS: Carcinogen--Conclusively Carcinogen in Humans, Teratogenic, Highly Toxic, FLAMMABLE (isooctane)

NIOSH REGISTRY NUMBER: TQ 136000

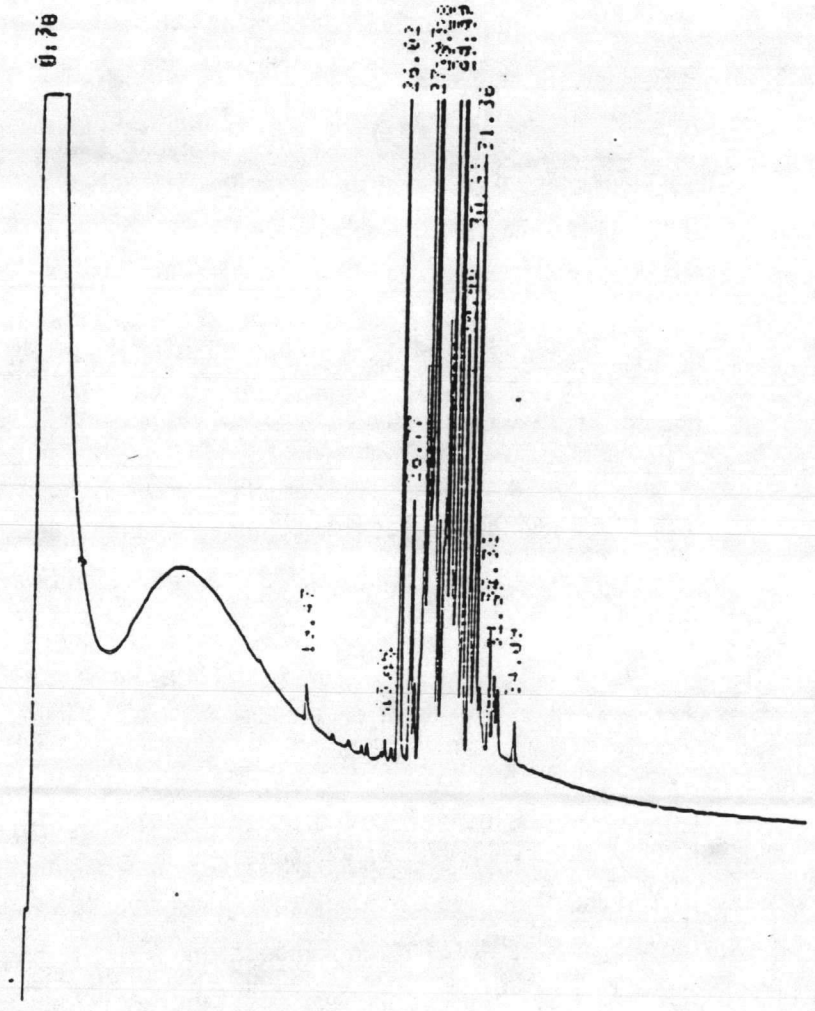
TOXIC EXPOSURE ROUTES: Inhalation, Absorption, Ingestion

PERSONNEL PROTECTION: Wear Viton gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors; respirator required.
CAUTION--HUMAN CARCINOGEN AND TERATOGEN

****

For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327



Aroclor 1254

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: Benzene

SYNONYMS: Pyrobenzole, Coal naphta, Carbon oil, Phenyl hydride, Benzin, Benzolene

CAS NUMBER: 71-43-2

MOLECULAR FORMULA: C_6H_6

REPOSITORY NUMBER: E-000004

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10,000 µg/mL

STANDARD CODE: 0404

DATE PREPARED: 14MAR83

STORAGE AND PRESERVATION: Store at ≤20°C; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Burdick and Jackson

CATALOG NUMBER: Not Listed

LOT NUMBER: AB483

PURITY: 99.5%

Reference Chromatograms:
EPA Method 602
(See Reverse Side)

****

HAZARDS

HAZARDS: Highly flammable, Toxic, Suspected Carcinogen

NIOSH REGISTRY NUMBER: CY1400000

TOXIC EXPOSURE ROUTES: Inhalation, skin absorption, ingestion

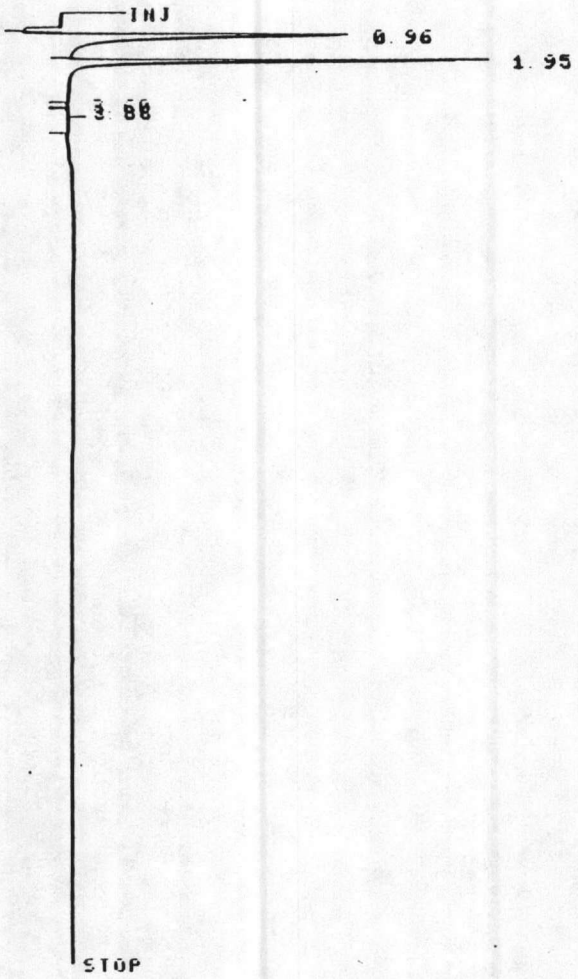
PERSONNEL PROTECTION: Wear Buna-N or Neoprene gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breath vapors.
SUSPECT CARCINOGEN

****

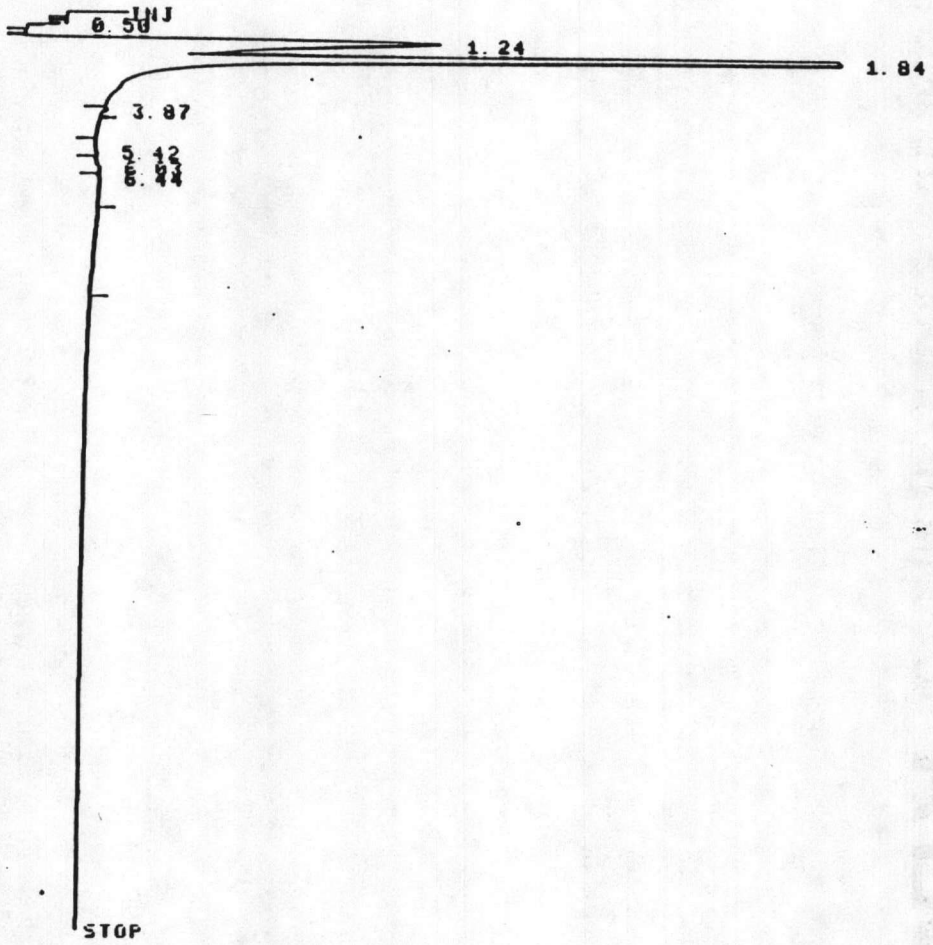
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



Benzene

THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: 1,2-Dichloroethane

SYNONYMS: Ethylene chloride, Brocide, Destruxol borer-sol, 1,2-Dichloroethane, Borer sol, Chlorure, Dichlormulsion, Ethane dichloride

CAS NUMBER: 107-06-2

MOLECULAR FORMULA: $C_2H_4Cl_2$

REPOSITORY NUMBER: E-000009

****

STANDARD SOLUTION

SOLVENT: Methanol

CONCENTRATION: 10000 ± 1000 µg/mL

STANDARD CODE: 0902

DATE PREPARED: 03 MAY 1982

STORAGE AND PRESERVATION: Store at ≤5°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use.

****

COMPOUND DATA

SOURCE: Aldrich

CATALOG NUMBER: 15,478-4

LOT NUMBER: 120487

PURITY: QAS > 99%

Reference Chromatograms:

EPA Method 601

(See Reverse Side)

****

HAZARDS

NIOSH REGISTRY NUMBER: KI0525000

HAZARDS: Carcinogen--Oral Mouse and Rat Conclusive
Toxic, Dangerous Fire Risk, Explosive

TOXIC EXPOSURE ROUTES: Absorption, Inhalation, Ingestion

PERSONNEL PROTECTION: Wear neoprene or Buna-N gloves, impervious laboratory apron or clothing while handling this standard. Open only in a fume hood or glove box. Do not breathe vapors.

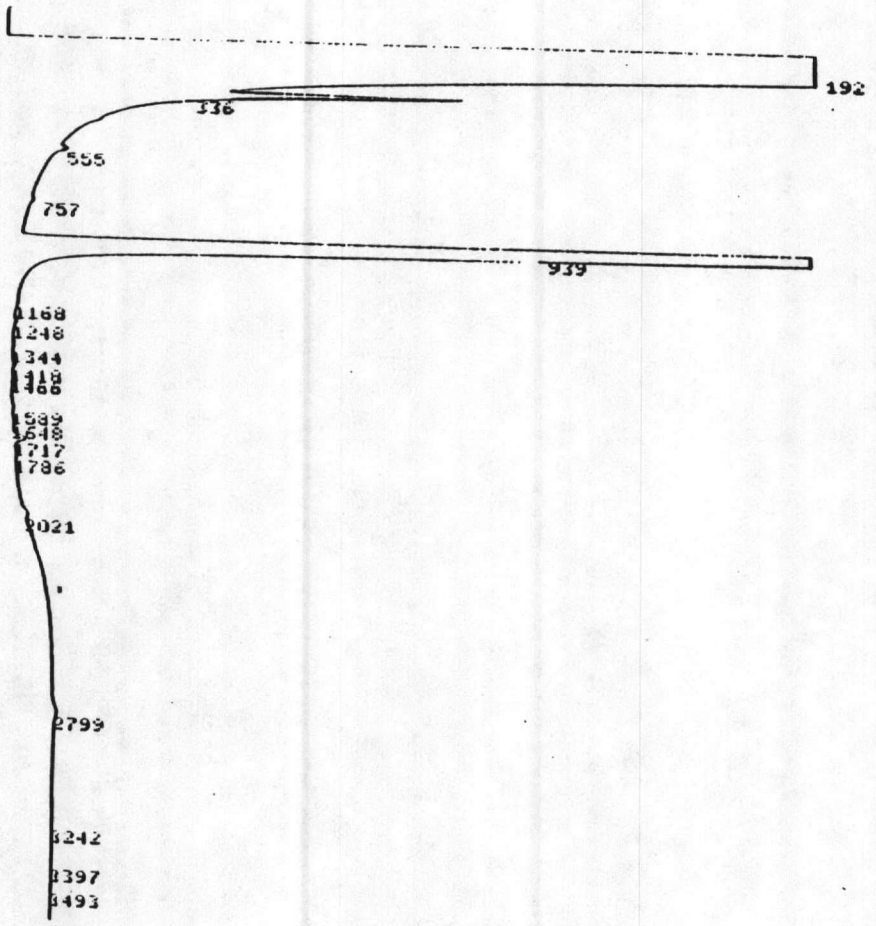
CAUTION--EXPLOSIVE, FLAMMABLE

****

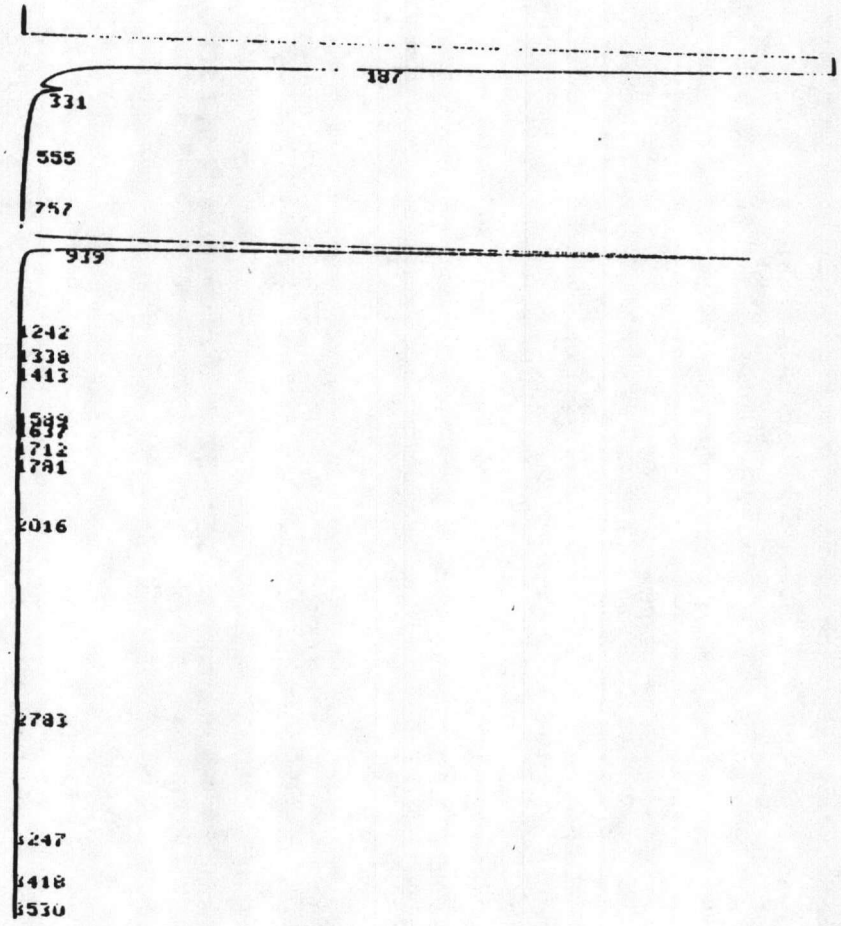
For comments or questions concerning these standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St.Clair Street
Cincinnati, Ohio 45268
(513) 684-7327

HIGH ATTENUATION



LOW ATTENUATION



1,2-Dichloroethane

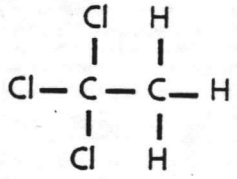
THE EPA REPOSITORY FOR TOXIC AND HAZARDOUS MATERIALS

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: 1,1,1-Trichloroethane

SYNONYMS: Methanyl chloroform
Chlorethane
α-Trichloroethane



CAS NUMBER: 71-55-6

MOLECULAR FORMULA: $C_2H_3Cl_3$

REPOSITORY NUMBER: EC-000010-01

STANDARD SOLUTION

CONCENTRATION: 10,000 ± 1000 µg/mL*

SOLVENT: Methanol

STANDARD CODE: 10-01-03

DATE PREPARED: 23 May 84

Reference Chromatogram

(See Reverse side)

STORAGE & PRESERVATION: Store at ≤-20°C; protect from light; transfer to tightly sealed vial after opening; use Teflon-lined septum or cap. Allow to equilibrate to room temperature before use. Do not store in aluminum containers.

PURITY

PURITY ASSAY OF NEAT COMPOUND: QAR 98.1%

*Concentration of the standard solution was corrected for purity at the time the solution was prepared.

HAZARDS

NIOSH REGISTRY NUMBER: KJ2975000

LD_{50}: Oral Rat 10300 mg/kg

TOXIC EXPOSURE ROUTES: Skin Absorption, Ingestion, Inhalation

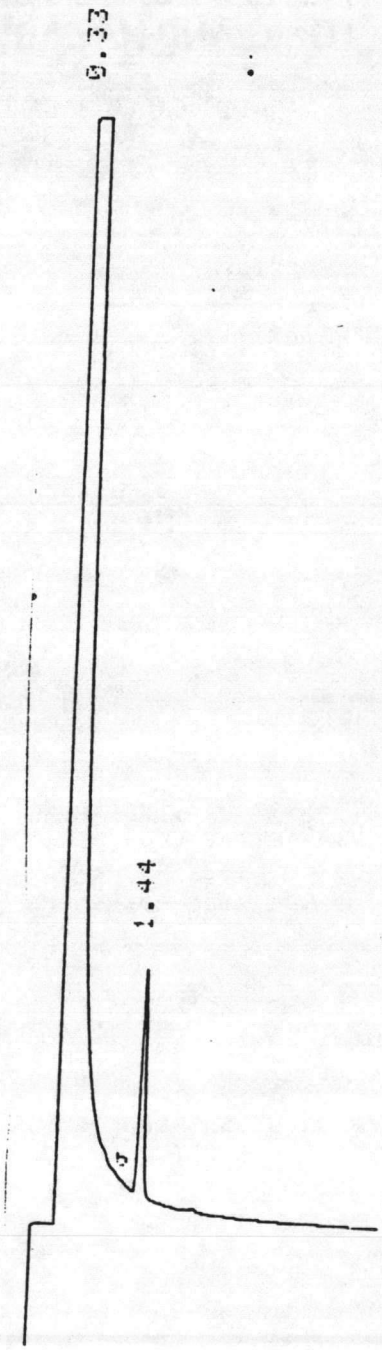
HAZARDS: Toxic, Narcotic in high concentrations; Skin irritant; emits chlorine upon decomposition; Flammable (MeOH)

PERSONNEL PROTECTION: Wear, impervious gloves and laboratory clothing while handling this standard. Open only in a fumehood or glove box. Do not breathe vapors.

For comments or questions concerning those standards please contact:

Quality Assurance Branch
U.S. Environmental Protection Agency-EMSL
26 West St. Clair Street
Cincinnati, OH 45268

(513) 684-7327



1,1,1- Trichloroethane

EPA Reference Method 601

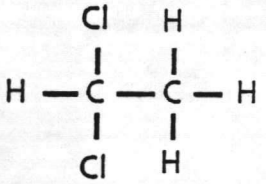
Column; SP 1000 Carbopack 3

ANALYTICAL STANDARD DATA SHEET

IDENTIFIERS

COMPOUND NAME: 1,1-Dichloroethane

SYNONYMS: Asymmetrical dichloroethane
1,1-Ethylidene dichloride
Ethylidenechloride



CAS NUMBER: 75-34-3

MOLECULAR FORMULA: CH_3CHCl_2

REPOSITORY NUMBER: EC-000012-01

STANDARD SOLUTION

CONCENTRATION: 10,000 ± 1000 µg/mL

Reference Chromatogram (see reverse side)

SOLVENT: Methanol

STANDARD CODE: 12-01-03

DATE PREPARED: 06 DEC 82

STORAGE & PRESERVATION: Store at 5°C; protect from light; allow to equilibrate to room temperature before use; transfer to a tightly sealed vial after opening; use Teflon-lined septum or cap.

PURITY

PURITY ASSAY OF NEAT COMPOUND: QAS 98.7%

HAZARDS

NIOSH REGISTRY NUMBER: KI0175000

LD_{50}: 725 mg/kg

TOXIC EXPOSURE ROUTES: Inhalation; skin absorption; oral injection; contact with eyes.

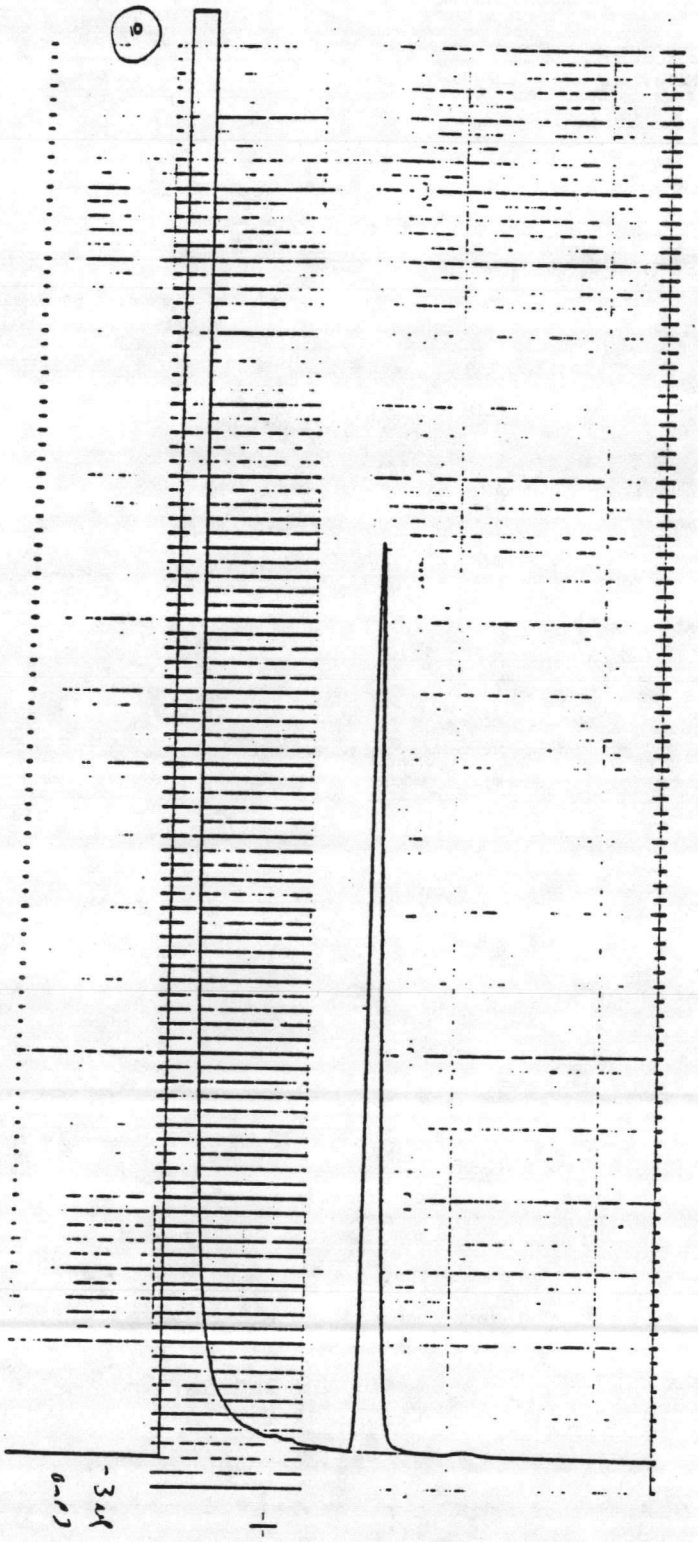
HAZARDS: Irritant; flammable; narcotic in high concentrations.

PERSONNEL PROTECTION: Use impervious clothing, gloves and face shields. Open only in a fume hood or glovebox. Respirator suggested if hood is not available.

For comments or questions concerning those standards please contact:

Mr. Harry Kolde
U.S. Environmental Protection Agency-EMSL
26 West St. Clair Street
Cincinnati, OH 45268

(513) 684-7327



1,1-Dichloroethane
EPA Reference Method 601/624
Column: 20% SP2100/.1% Carbowax

TAB PLACEMENT HERE

DESCRIPTION:

Residual Chlorine

Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

RESIDUAL CHLORINE
Received: MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for RESIDUAL CHLORINE Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in the package. Th quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in EPA Manual 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes" - Methods 330.1 - 330.5. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA methods. The quality control samples are not to be used as standards.

Sample Preparation

To begin the analyses add 900 mL of laboratory-pure water to a 1000 mL volumetric flask. Cool ampul to 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 5.0 mL of the concentrate to the flask, using a 5.0 mL volumetric pipet. Bring contents to 1000 mL using laboratory-pure water. Mix well. The sample is ready for analysis. A blank 1000 mL laboratory-pure water should be analyzed concurrently for background correction.

Approximately 20 mL of each concentrate is supplied. This is sufficient to prepare double volumes of sample if one liter is not enough. An aliquot from the ampul may be spiked into a natural water to check recoveries in the presence of possible interferences.

A sheet containing the statement of true values is enclosed with these instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
EMSL-Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

WS579

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

TRUE VALUES

RESIDUAL CHLORINE

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations expressed as mg/liter.

The mean recovery ($\overline{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence limit. The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\overline{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Con #	True Value	$\overline{X}$	S	95% Confidence Limits
2	0.7	0.70	0.14	0.42 - 0.98
4	1.7	1.74	0.20	1.34 - 2.14

WS579

TAB PLACEMENT HERE

DESCRIPTION:

Nitrate / Fluoride

Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

NITRATE/FLUORIDE
Received:
MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Control Check Samples

Instructions for NITRATE/FLUORIDE Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control sample concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in the EPA manual 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes," (Nitrate-Method 352.1 and Fluoride-Method 353.1, 353.2 and 353.3) Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA methods. The quality control samples are not to be used as standards.

Sample Preparation

To begin the analyses, add approximately 900 mL of laboratory pure or tap water to a 1000 mL volumetric flask. Open an ampul by snapping the top off at the break area on the neck and pipet 20.0 mL of the concentrate into the volumetric flask. Dilute to volume and mix well.

The blank laboratory pure water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure water and the tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with these instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Control Check Samples

True Values for NITRATE/FLUORIDE

The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence interval. The true value represents the actural weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$). The mean recovery and the standard deviation were generated from data from Performance Evaluation Studies. All values below are expressed as mg/liter.

Parameter	True Value for Sample 4	$\bar{X}$	S	95% Confidence Interval
Nitrate-Nitrogen	0.08	0.08	0.02	0.04 - 0.12
Fluoride	0.23	0.23	0.02	0.19 - 0.27

Parameter	True Value for Sample 13	$\bar{X}$	S	95% Confidence Interval
Nitrate-Nitrogen	1.67	1.66	0.07	1.52 - 1.80
Fluoride	1.36	1.36	0.05	1.26 - 1.46

Parameter	True Value for Sample 15	$\bar{X}$	S	95% Confidence Interval
Nitrate-Nitrogen	9.10	9.04	0.33	8.38 - 9.70
Fluoride	2.28	2.27	0.08	2.11 - 2.43

WS
378

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Control Check Samples

Instructions for NITRATE/FLUORIDE Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control sample concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in the EPA manual 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes," (Nitrate-Method 352.1 and Fluoride-Method 353.1, 353.2 and 353.3) Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA methods. The quality control samples are not to be used as standards.

Sample Preparation

To begin the analyses, add approximately 900 mL of laboratory pure or tap water to a 1000 mL volumetric flask. Open an ampul by snapping the top off at the break area on the neck and pipet 20.0 mL of the concentrate into the volumetric flask. Dilute to volume and mix well.

The blank laboratory pure water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure water and the tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with these instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Control Check Samples

True Values for NITRATE/FLUORIDE

The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence interval. The true value represents the actural weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$). The mean recovery and the standard deviation were generated from data from Performance Evaluation Studies. All values below are expressed as mg/liter.

Parameter	True Value for Sample 4	$\bar{X}$	S	95% Confidence Interval
Nitrate-Nitrogen	0.08	0.08	0.02	0.04 - 0.12
Fluoride	0.23	0.23	0.02	0.19 - 0.27

Parameter	True Value for Sample 13	$\bar{X}$	S	95% Confidence Interval
Nitrate-Nitrogen	1.67	1.66	0.07	1.52 - 1.80
Fluoride	1.36	1.36	0.05	1.26 - 1.46

Parameter	True Value for Sample 15	$\bar{X}$	S	95% Confidence Interval
Nitrate-Nitrogen	9.10	9.04	0.33	8.38 - 9.70
Fluoride	2.28	2.27	0.08	2.11 - 2.43

WS
378

TAB PLACEMENT HERE

DESCRIPTION:

Turbidity

Received: Mar 21 1985

☑ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

TURBIDITY
Received: MAR 21 1985

U.S. Environmental Portection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for TURBIDITY Analyses

CAUTION: Read Instrucions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for the verified by the methodology stated in EPA Manual 600/4-79-020, "Method for Analysis of Water and Wastes" Method 180.1. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA method. The quality control samples are not to be used as standards.

Sample Preparation

Prepare the samples exactly as described. Use only clean, dry Class A volumetric pipets to the transfer the samples. Perform the steps in the procedure in rapid succession to prevent the sample from settling. Note that the volume of sample concentrate used differs for each concentrate.

Concentrate 1

Shake the concentrate in the ampul thoroughly, open the ampul by snapping the top off at the break point. Empty the entire contents into a small beaker or flask and gently swirl to mix thoroughly. DO NOT RINSE THE AMPUL. Immediately pipet 1.00 mL of Concentrate 1 to 1000 mL volumetric flask and dilute to the mark with turbidity free water.* Standardize a Hach Turbidimeter Model 2100 or 2100A or other instrument meeting the design criteria as specified in the EPA Manual of Methods for Chemical Analysis of Water and Wastes, 1974, p. 296. For Concentrate 1, standardize with freshly prepared 10 NTU formazin on the 0-10 range. Hand shake the volumetric flask thoroughly and immediately pour some of the diluted sample into the turbidimeter tube. Read the turbidity directly from the instrument scale after the air bubbles have disappeared.

WS278

Concentrate 2

Shake the concentrate in the ampul thoroughly, open the ampul by snapping the top off at the break point. Empty the entire contents into a small beaker or flask and gently swirl to mix thoroughly. DO NOT RINSE THE AMPUL. Immediately pipet 2.00 mL of Concentrate 2 to a 1000 mL volumetric flask and dilute to the mark with turbidity free water.* Standardize a Hach Turbidimeter Model 2100 or 2100A or other instrument meeting the design criteria as specified in the EPA Manual of Methods for Chemical Analysis of Water and Wastes, 1974, p. 296. For Concentrate 2, standardize with freshly prepared 1 NTU formazin on the 0.1 range. Hand shake the volumetric flask thoroughly and immediately pour some of the diluted sample into the turbidimeter tube. Read the turbidity directly from the instrument scale after the air bubbles have disappeared.

A sheet containing the statement of added levels is enclosed with these instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

*Turbidity Free Water - Distilled or deionized water that has a turbidity of 0.05 NTU or less. It is generally possible to obtain water of the turbidity by passing distilled water through a 0.45 μ pore size membrane filter.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

TRUE VALUES

TURBIDITY

The mean recovery ($\overline{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence limit. The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\overline{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Turbidity

Conc #	True Value	$\overline{X}$	S	95% Confidence Limits
1	4.27 NTU	4.39	0.31	3.77 - 5.01
2	0.82 NTU	0.96	0.18	0.60 - 1.32

WS278

TAB PLACEMENT HERE

DESCRIPTION:

Trace Metals

Received: Mar 21 1985

☑ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

TRACE METALS
Received:
MAR 21 1985

US Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Check Control Samples
Instructions for TRACE METALS analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of water sample concentrates are enclosed. Each of these concentrates may be analyzed for: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver (EPA Methods Manual 600/4-79-020, "Methods for Chemical Analysis of Water and Waste" method numbers 206.2 and 206.3 for As; 208.1 and 208.2 for Ba; 213.1 and 213.2 for Cd; 218.1 and 218.2 for Cr; 239.1 and 239.2 for Pb; 245.1 and 245.2 and 245.5 for Hg; 270.2 and 270.3 for Se and 272.1 and 272.2 for Ag). The concentrates were prepared from exact amounts of spectrographically pure metals or metal compounds. They have been preserved by the addition of re-distilled nitric acid. When diluted according to instructions, the concentrations of these metals range from low microgram per liter to several hundred micrograms or more per liter. (These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA methods. The Quality Control Samples are not to be used as standards.)

Constituents are present in soluble form and should not be filtered. The concentrates have been preserved so that no changes occur in the sealed ampuls. However, the preservative treatment is not effective after dilution. Therefore, the samples should be analyzed soon after opening and diluting.

Although the method of testing is up to the analyst, it is assumed that atomic absorption spectroscopy will be the technique used for most metals. Arsenic and selenium can be determined by the gaseous hydride method while arsenic can also be analyzed by silver diethyldithiocarbamate method. The analyst may find that the levels of metals in at least one sample are below the limit of detection in aqueous solution. To determine these levels, some form of concentration must be employed before analysis.

Sample Preparation

To begin the analyses, add approximately 900 mL of laboratory pure or tap water to a 1000 mL volumetric flask. Then pipet 1.0 mL of reagent grade nitric acid into the flask. Open an ampul by snapping the top off at the break area of the neck and pipet 10.0 mL of the concentrate into the liter flask. Dilute to volume and mix well. Each ampul is to be diluted to volume and analyzed separately.

The laboratory pure or tap water blank should be analyzed for background correction. Comparison of recovery in tap water with the recovery from laboratory pure water is a check for possible interferences.

The standards that are prepared for these analyses must contain 0.15% reagent grade nitric acid 1.5 mL to 1 liter. A sheet containing the statement of added levels is attached with given statistics for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
EMSL - Cincinnati
US Environmental Protection Agency
Cincinnati, OH 45268

US Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES
TRUE VALUES

TRACE METALS

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations expressed as µg/liter.

The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence limit. The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Parameter	Conc	True Value	$\bar{X}$	S	95% Confidence Limits
As	2	27	26.4	3.0	20.4 - 32.4
	13	43	42.4	4.1	34.2 - 50.6
Ba	2	192	202	23.2	156 - 248
	13	344	353	33.4	286 - 420
Cd	2	3.3	3.23	0.52	2.2 - 4.2
	13	4.6	4.44	0.60	3.2 - 5.6
Cr	2	18	18.2	1.57	15.1 - 21.3
	13	46	46.0	3.53	38.9 - 53.1
Pb	2	28	28.3	3.0	22.3 - 34.3
	13	45	45.1	4.0	37.1 - 53.1
Hg	2	1.8	1.79	0.21	1.4 - 2.2
	13	1.4	1.39	0.17	1.0 - 1.7
Se	2	6.0	5.68	1.04	3.6 - 7.8
	13	7.6	7.21	1.27	4.7 - 9.7
Ag	2	28	27.6	2.8	22.0 - 33.2
	13	34	33.5	3.2	27.1 - 39.9

TAB PLACEMENT HERE

DESCRIPTION:

Polychlorinated Biphenyls

(PCBs) Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

POLYCHLORINATED BIPHENYLS
(PCBs)
Received: MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for POLYCHLORINATED BIPHENYLS Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in USEPA Manual 600/4-82-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewaters," - Method 608. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water to a two liter separatory funnel. Stabilize temperature of ampul at 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis. Immediately transfer the remainder of the concentrate into a clean dry 5 mL glass vial or flask and seal. Do not expose to plastic. Store in freezer for future analyses.

A blank laboratory pure water should be analyzed concurrently for background correction.

A sheet containing the statement of added levels is attached for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

TRUE VALUES

PCBs, µg/liter

When diluted to volume according to instructions, the samples contain the following compounds at concentrations expressed as µg/liter. The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence interval (C.I.). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Aroclor No.	Sample	True Value	$\bar{X}$	S	95% C.I.
1016	1	5.25	4.57	1.26	2.05 - 7.09
	2	1.31	1.14	0.31	0.52 - 1.76
1221	3	7.20	6.26	1.73	2.80 - 9.72
	4	1.26	1.10	0.30	0.50 - 1.70
1232	5	4.28	3.72	1.03	1.66 - 5.78
	6	1.43	1.24	0.34	0.56 - 1.92
1242	7	6.30	5.48	1.51	2.46 - 8.50
	8	1.89	1.64	0.45	0.74 - 2.54
1248	9	8.10	7.05	1.94	3.17 - 10.9
	10	3.51	3.05	0.84	1.37 - 4.73
1254	17	5.40	4.70	1.30	2.10 - 7.30
	18	1.62	1.41	0.39	0.63 - 2.19
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
1262	15	9.20	8.00	2.21	3.58 - 12.4
	16	2.76	2.40	0.66	1.08 - 3.72

WP
679/783

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for POLYCHLORINATED BIPHENYLS Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in USEPA Manual 600/4-82-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewaters," - Method 608. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water to a two liter separatory funnel. Stabilize temperature of ampul at 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis. Immediately transfer the remainder of the concentrate into a clean dry 5 mL glass vial or flask and seal. Do not expose to plastic. Store in freezer for future analyses.

A blank laboratory pure water should be analyzed concurrently for background correction.

A sheet containing the statement of added levels is attached for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

TRUE VALUES

PCBs, µg/liter

When diluted to volume according to instructions, the samples contain the following compounds at concentrations expressed as µg/liter. The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence interval (C.I.). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Aroclor No.	Sample	True Value	$\bar{X}$	S	95% C.I.
1016	1	5.25	4.57	1.26	2.05 - 7.09
	2	1.31	1.14	0.31	0.52 - 1.76
1221	3	7.20	6.26	1.73	2.80 - 9.72
	4	1.26	1.10	0.30	0.50 - 1.70
1232	5	4.28	3.72	1.03	1.66 - 5.78
	6	1.43	1.24	0.34	0.56 - 1.92
1242	7	6.30	5.48	1.51	2.46 - 8.50
	8	1.89	1.64	0.45	0.74 - 2.54
1248	9	8.10	7.05	1.94	3.17 - 10.9
	10	3.51	3.05	0.84	1.37 - 4.73
1254	17	5.40	4.70	1.30	2.10 - 7.30
	18	1.62	1.41	0.39	0.63 - 2.19
[redacted]					
1262	15	9.20	8.00	2.21	3.58 - 12.4
	16	2.76	2.40	0.66	1.08 - 3.72

WP
679/783

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for POLYCHLORINATED BIPHENYLS Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were deisgned for and verified by the methodology stated in USEPA Manual 600/4-82-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewaters," - Method 608. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water to a two liter separatory funnel. Stabilize temperature of ampul at 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis. Immediately transfer the remainder of the concentrate into a clean dry 5 mL glass vial or flask and seal. Do not expose to plastic. Store in freezer for future analyses.

A blank laboratory pure water should be analyzed concurrently for background correction.

A sheet containing the statement of added levels is attached for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

True Values for Polychlorinated Biphenyls

When diluted to volume according to instructions, the sample contains the PCB at the concentration given in µg/liter. The acceptance criteria given below is from the Quality Control Section of Method 608 - Pesticide and PCB's.

Values, µg/L

PCB	Code on Ampul	True Value	Limit for S	Range for $\bar{X}$	Range for P
1260	WP 784	50	10.4	18.7 - 54.9	8 - 127%

S = Standard deviation of four recoveries: Section 8.2.4.

$\bar{X}$ = Average recovery for four recoveries: Section 8.2.4.

P = Percent recovery measured: Section 8.3.2. and Section 8.4.2.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for POLYCHLORINATED BIPHENYLS Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were deisgned for and verified by the methodology stated in USEPA Manual 600/4-82-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewaters," - Method 608. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water to a two liter separatory funnel. Stabilize temperature of ampul at 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis. Immediately transfer the remainder of the concentrate into a clean dry 5 mL glass vial or flask and seal. Do not expose to plastic. Store in freezer for future analyses.

A blank laboratory pure water should be analyzed concurrently for background correction.

A sheet containing the statement of added levels is attached for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

True Values for Polychlorinated Biphenyls

When diluted to volume according to instructions, the sample contains the PCB at the concentration given in µg/liter. The acceptance criteria given below is from the Quality Control Section of Method 608 - Pesticide and PCB's.

Values, µg/L

PCB	Code on Ampul	True Value	Limit for S	Range for $\bar{X}$	Range for P
1260	WP 784	50	10.4	18.7 - 54.9	8 - 127%

S = Standard deviation of four recoveries: Section 8.2.4.

$\bar{X}$ = Average recovery for four recoveries: Section 8.2.4.

P = Percent recovery measured: Section 8.3.2. and Section 8.4.2.

TAB PLACEMENT HERE

DESCRIPTION:

Trihalomethane (THM)

Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

TRIHALOMETHANE (THM)

Received:
MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES

Instructions for TRIHALOMETHANE Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

One sample concentrate containing trihalomethanes is enclosed. The concentrate is to be spiked into organic-free water and analyzed by gas chromatography for four trihalomethanes at micrograms per liter levels. The methods of choice are purge and trap technique (USEPA Methods 501.1 for drinking water and USEPA Method 601 for industrial and municipal wastewater) and liquid-liquid extraction technique (USEPA Method 501.2 for drinking water).

Constituents are present in soluble form and should not be filtered. The samples are volatile and should be analyzed precisely as the instructions indicate. An undosed water blank should be prepared and analyzed for background (blank).

Separate instructions for sample preparation for purge and trap technique, sample preparation for liquid-liquid extraction technique, stock standard preparation and aqueous standard preparation, are provided on the following pages.

A sheet containing a statement of true values is attached for use as you desire. If there are any technical questions or problems please contact:

Quality Assurance Branch
Enviromental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

Recommended Procedures for Preparation of Trihalomethane Quality Control Samples by Purge and Trap Technique (Method 501.1 and 601)

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all of the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampul to 20 C.

c. Open the ampul by breaking the top off at the break area on the neck and immediately withdraw and adjust to 200 µL.

d. Rapidly inject 200 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

e. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

f. Discard the contents contained in the neck of the flask. Fill the 5 mL sample syringe from the sample solution contained in the expanded area of the flask as directed below.

   Remove the plungers from two 5 mL syringes and attach a closed syringe valve to each.

   Remove the closure of the volumetric flask and carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same volumetric flask. This second syringe is reserved for a duplicate analysis, if necessary.

   Proceed with Purge and Trap Technique and GC analyses.

g. Never use pipets to dilute or transfer this sample or aqueous standard.

h. Aqueous solution are not stable when stored with a headspace and should be discarded after one hour.

WS484

Recommended Procedures for Preparation of Trihalomethane Quality Control Samples by Liquid-Liquid Extraction Technique (USEPA Method 501.2)

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampul to 20 C.

c. Open the ampul by breaking the top off at the break area on the neck and immediately withdraw and adjust to 200 µL.

d. Rapidly inject 200 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

e. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

f. Discard the contents contained in the neck of the flask. Fill the 10 mL sample syringe from the sample solution contained in the expanded area of the flask as directed below.

   Remove the plunger from a 10 mL syringe and attach a closed syringe valve.

   Open the 100 mL volumetric flask and carefully pour the sample into the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 10.0 mL. Close the valve.

g. Transfer the contents of the 10 mL syringe to a clean extraction flask and proceed as directed in the method.

h. Never use pipets to dilute or transfer samples or aqueous standards.

i. Aqueous solutions are not stable when stored with a headspace and should be discarded after one hour.

WS484

Recommended Procedure for Preparation of
Standard Stock Solutions for Trihalomethanes

1. Place about 9.8 mL of methyl alcohol into a ground glass stoppered 10 mL volumetric flask.

2. Allow the flask to stand unstoppered about 10 minutes or until all alcohol wetted surface have dried.

3. Weigh the flask to the nearest 0.1 mg.

4. Using a 100 µL syringe, immediately add 2 drops of the reference standard to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

5. Dilute to volume, stopper, then mix by inverting the flask several times.

6. Transfer the solution to a dated and labeled 15 mL screw-cap bottle with a Teflon cap liner.

7. Calculate the concentration in micrograms per microliter from the net gain in weight.

8. Store the solution at 4 C.

NOTE: All standard solutions prepared in methyl alcohol are stable up to 4 weeks when stored under these conditions. They should be discarded after that time has elapsed.

NOTE: Because of the toxicity of the purgeables, it is necessary to prepare primary dilutions in a hood. It is further recommended that a NIOSH/MESA approved toxic glass respirator be used when the analyst handles high concentrations of such materials.

WS484

Recommended Procedure for Preparation of Trihalomethane Aqueous Calibration Standards

In order to prepare accurate standard solutions, the following precautions must be observed.

a. Do not inject into organic-free water solvents that are immiscible such as hexane or methylene chloride.

b. Rapidly inject the alcoholic standard into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the standard is injected into the neck area, poor results are obtained.

c. Mix aqueous standards by inverting the flask three times only. Excessive shaking results in loss of volatiles.

d. Discard the contents contained in the neck of the flask. Fill the syringe from the standard solution contained in the expanded area of the flask as directed below:

   A 5.0 mL syringe is used with purge and trap technique while a 10.0 mL syringe is used with liquid-liquid extraction technique.

   Remove the plungers from two 5 mL or two 10 mL syringes and attach a closed syringe valve to each.

   Open the 100 mL volumetric and carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the standard. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL or 10 mL. Close the valve.

   Fill the second syringe in an identical manner from the same volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

e. Never use pipets to dilute or transfer these samples or aqueous standards.

f. Aqueous standards when stored with a headspace are not stable and should be discarded after one hour.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES

TRUE VALUES

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations in µg/liter. The sample, by definition, is the solution in the 100 mL volumetric flask expressed as µg/liter.

The true values represent the actual weighing and all subsequent dilution. The mean recovery ($\bar{X}$), the standard deviation (S) and the 95 percent confidence interval (CI) are given for USEPA Methods 501.1 and 501.2. The 95 percent confidence interval represents the mean recovery plus or minus two standard deviations and was developed from regression equations from Interlaboratory Method Validation Studies.

Method 501.1

Parameter	True Value	$\bar{X}$	S	95% CI
Chloroform	19.9	18.4	3.9	10.6 - 26.2
Bromodichloromethane	20.3	19.3	4.6	10.1 - 28.5
Chlorodibromomethane	19.3	19.0	5.3	8.4 - 29.6
Bromoform	19.6	18.7	5.9	6.9 - 30.5

Method 501.2

Parameter	True Value	$\bar{X}$	S	95% CI
Chloroform	19.9	20.2	4.1	12.0-28.4
Bromodichloromethane	20.3	19.9	3.7	12.5-27.3
Chlorodibromomethane	19.3	19.8	3.6	12.6-27.0
Bromoform	19.6	17.5	2.8	11.9-23.1

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES

Instructions for TRIHALOMETHANE Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

One sample concentrate containing trihalomethanes is enclosed. The concentrate is to be spiked into organic-free water and analyzed by gas chromatography for four trihalomethanes at micrograms per liter levels. The methods of choice are purge and trap technique (USEPA Methods 501.1 for drinking water and USEPA Method 601 for industrial and municipal wastewater) and liquid-liquid extraction technique (USEPA Method 501.2 for drinking water).

Constituents are present in soluble form and should not be filtered. The samples are volatile and should be analyzed precisely as the instructions indicate. An undosed water blank should be prepared and analyzed for background (blank).

Separate instructions for sample preparation for purge and trap technique, sample preparation for liquid-liquid extraction technique, stock standard preparation and aqueous standard preparation, are provided on the following pages.

A sheet containing a statement of true values is attached for use as you desire. If there are any technical questions or problems please contact:

Quality Assurance Branch
Enviromental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

Recommended Procedures for Preparation of Trihalomethane Quality Control Samples by Purge and Trap Technique (Method 501.1 and 601)

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all of the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampul to 20 C.

c. Open the ampul by breaking the top off at the break area on the neck and immediately withdraw and adjust to 200 µL.

d. Rapidly inject 200 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

e. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

f. Discard the contents contained in the neck of the flask. Fill the 5 mL sample syringe from the sample solution contained in the expanded area of the flask as directed below.

   Remove the plungers from two 5 mL syringes and attach a closed syringe valve to each.

   Remove the closure of the volumetric flask and carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same volumetric flask. This second syringe is reserved for a duplicate analysis, if necessary.

   Proceed with Purge and Trap Technique and GC analyses.

g. Never use pipets to dilute or transfer this sample or aqueous standard.

h. Aqueous solution are not stable when stored with a headspace and should be discarded after one hour.

WS484

Recommended Procedures for Preparation of Trihalomethane Quality Control Samples by Liquid-Liquid Extraction Technique (USEPA Method 501.2)

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampul to 20 C.

c. Open the ampul by breaking the top off at the break area on the neck and immediately withdraw and adjust to 200 µL.

d. Rapidly inject 200 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

e. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

f. Discard the contents contained in the neck of the flask. Fill the 10 mL sample syringe from the sample solution contained in the expanded area of the flask as directed below.

   Remove the plunger from a 10 mL syringe and attach a closed syringe valve.

   Open the 100 mL volumetric flask and carefully pour the sample into the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 10.0 mL. Close the valve.

g. Transfer the contents of the 10 mL syringe to a clean extraction flask and proceed as directed in the method.

h. Never use pipets to dilute or transfer samples or aqueous standards.

i. Aqueous solutions are not stable when stored with a headspace and should be discarded after one hour.

WS484

Recommended Procedure for Preparation of
Standard Stock Solutions for Trihalomethanes

1. Place about 9.8 mL of methyl alcohol into a ground glass stoppered 10 mL volumetric flask.

2. Allow the flask to stand unstoppered about 10 minutes or until all alcohol wetted surface have dried.

3. Weigh the flask to the nearest 0.1 mg.

4. Using a 100 µL syringe, immediately add 2 drops of the reference standard to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

5. Dilute to volume, stopper, then mix by inverting the flask several times.

6. Transfer the solution to a dated and labeled 15 mL screw-cap bottle with a Teflon cap liner.

7. Calculate the concentration in micrograms per microliter from the net gain in weight.

8. Store the solution at 4 C.

NOTE: All standard solutions prepared in methyl alcohol are stable up to 4 weeks when stored under these conditions. They should be discarded after that time has elapsed.

NOTE: Because of the toxicity of the purgeables, it is necessary to prepare primary dilutions in a hood. It is further recommended that a NIOSH/MESA approved toxic glass respirator be used when the analyst handles high concentrations of such materials.

WS484

Recommended Procedure for Preparation of Trihalomethane
Aqueous Calibration Standards

In order to prepare accurate standard solutions, the following precautions must be observed.

a. Do not inject into organic-free water solvents that are immiscible such as hexane or methylene chloride.

b. Rapidly inject the alcoholic standard into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the standard is injected into the neck area, poor results are obtained.

c. Mix aqueous standards by inverting the flask three times only. Excessive shaking results in loss of volatiles.

d. Discard the contents contained in the neck of the flask. Fill the syringe from the standard solution contained in the expanded area of the flask as directed below:

   A 5.0 mL syringe is used with purge and trap technique while a 10.0 mL syringe is used with liquid-liquid extraction technique.

   Remove the plungers from two 5 mL or two 10 mL syringes and attach a closed syringe valve to each.

   Open the 100 mL volumetric and carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the standard. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL or 10 mL. Close the valve.

   Fill the second syringe in an identical manner from the same volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

e. Never use pipets to dilute or transfer these samples or aqueous standards.

f. Aqueous standards when stored with a headspace are not stable and should be discarded after one hour.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES

TRUE VALUES

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations in µg/liter. The sample, by definition, is the solution in the 100 mL volumetric flask expressed as µg/liter.

The true values represent the actual weighing and all subsequent dilution. The mean recovery ($\bar{X}$), the standard deviation (S) and the 95 percent confidence interval (CI) are given for USEPA Methods 501.1 and 501.2. The 95 percent confidence interval represents the mean recovery plus or minus two standard deviations and was developed from regression equations from Interlaboratory Method Validation Studies.

Method 501.1

Parameter	True Value	$\bar{X}$	S	95% CI
Chloroform	19.9	18.4	3.9	10.6 - 26.2
Bromodichloromethane	20.3	19.3	4.6	10.1 - 28.5
Chlorodibromomethane	19.3	19.0	5.3	8.4 - 29.6
Bromoform	19.6	18.7	5.9	6.9 - 30.5

Method 501.2

Parameter	True Value	$\bar{X}$	S	95% CI
Chloroform	19.9	20.2	4.1	12.0-28.4
Bromodichloromethane	20.3	19.9	3.7	12.5-27.3
Chlorodibromomethane	19.3	19.8	3.6	12.6-27.0
Bromoform	19.6	17.5	2.8	11.9-23.1

TAB PLACEMENT HERE

DESCRIPTION:

N/A

☑ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

U.S. Environmental Protection Agency
Environmental Monitoring and Support - Cincinnati

Water Supply Quality Control Check Samples

Instructions for HERBICIDE Analyses

Caution: Read Instructions Carefully Before Opening Ampuls.

A set of two sample concentrates of herbicides in methanol is enclosed. These concentrates are to be spiked into water samples and analyzed by gas or high pressure liquid chromatography for 2,4 D and Silvex present at microgram per liter levels. A separate sample is prepared from each concentrate. Constituents are present in soluble form and should not be filtered.

Sample Preparation

To begin the analyses, add 1000 mL of laboratory pure, tap, or natural water to a two liter separatory funnel. Stabilize temperature of ampuls at 20 C. Open an ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to a separatory funnel. Mix well. The sample is now ready for analysis. Repeat for second ampul.

Immediately transfer the remainder of the concentrate into a clean dry 5 mL glass vial or flask and seal. Do not expose to plastic. Store in freezer for future analyses.

The blank 1000 mL laboratory pure, tap, or natural water should be analyzed concurrently for background correction. Comparison of recoveries is a check on possible interferences.

A sealed sheet containing the statement of added levels is enclosed with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
EMSL-Cincinnati
US Environmental Protection Agency
Cincinnati, OH 45268

WS
778

US Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Control Check Samples

True Values for HERBICIDES, µg/liter

When diluted to volume according to instructions, the sample contains the following compounds at the concentrations expressed as µg/liter. The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below with the true value and the 95% confidence interval (C.I.). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Sample 2

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
2,4 D	5.4	4.73	1.17	2.39 - 7.07
Silvex	1.5	1.29	0.41	0.47 - 2.11

Sample 4

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
2,4 D	120	98.1	23.4	51.3 - 144.9
Silvex	12.5	10.8	2.6	5.6 - 16.0

WS
778

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982—559-017/0812

U.S. Environmental Protection Agency
Environmental Monitoring and Support - Cincinnati

Water Supply Quality Control Check Samples

Instructions for HERBICIDE Analyses

Caution: Read Instructions Carefully Before Opening Ampuls.

A set of two sample concentrates of herbicides in methanol is enclosed. These concentrates are to be spiked into water samples and analyzed by gas or high pressure liquid chromatography for 2,4 D and Silvex present at microgram per liter levels. A separate sample is prepared from each concentrate. Constituents are present in soluble form and should not be filtered.

Sample Preparation

To begin the analyses, add 1000 mL of laboratory pure, tap, or natural water to a two liter separatory funnel. Stabilize temperature of ampuls at 20 C. Open an ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to a separatory funnel. Mix well. The sample is now ready for analysis. Repeat for second ampul.

Immediately transfer the remainder of the concentrate into a clean dry 5 mL glass vial or flask and seal. Do not expose to plastic. Store in freezer for future analyses.

The blank 1000 mL laboratory pure, tap, or natural water should be analyzed concurrently for background correction. Comparison of recoveries is a check on possible interferences.

A sealed sheet containing the statement of added levels is enclosed with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
EMSL-Cincinnati
US Environmental Protection Agency
Cincinnati, OH 45268

WS
778

US Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

Water Supply Quality Control Check Samples

True Values for HERBICIDES, µg/liter

When diluted to volume according to instructions, the sample contains the following compounds at the concentrations expressed as µg/liter. The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below with the true value and the 95% confidence interval (C.I.). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Sample 2

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
2,4 D	5.4	4.73	1.17	2.39 - 7.07
Silvex	1.5	1.29	0.41	0.47 - 2.11

Sample 4

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
2,4 D	120	98.1	23.4	51.3 - 144.9
Silvex	12.5	10.8	2.6	5.6 - 16.0

WS
778

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982—559-017/0812

TAB PLACEMENT HERE

DESCRIPTION:

Pesticides I

Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

PESTICIDES I
Received: MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL CHECK SAMPLES

Instructions for CHLORINATED HYDROCARBON PESTICIDES - I Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested quality control concentrate is enclosed. The quality control sample was prepared form the highest quality material available and was designed for and verified by the methodology stated in USEPA Manual 600/4-81-053, "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. This sample is to be used as a means to check the individual analysts's accuracy and precision related to the USEPA methods. The quality control sample is not to be used as a standard.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water or tap water to a two liter separatory funnel. Cool ampuls to 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis.

The blank laboratory pure or tap water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure and tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL CHECK SAMPLES

Instructions for CHLORINATED HYDROCARBON PESTICIDES - I Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested quality control concentrate is enclosed. The quality control sample was prepared form the highest quality material available and was designed for and verified by the methodology stated in USEPA Manual 600/4-81-053, "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. This sample is to be used as a means to check the individual analysts's accuracy and precision related to the USEPA methods. The quality control sample is not to be used as a standard.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water or tap water to a two liter separatory funnel. Cool ampuls to 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis.

The blank laboratory pure or tap water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure and tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL CHECK SAMPLES

Instructions for CHLORINATED HYDROCARBON PESTICIDES - I Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested quality control concentrate is enclosed. The quality control sample was prepared form the highest quality material available and was designed for and verified by the methodology stated in USEPA Manual 600/4-81-053, "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. This sample is to be used as a means to check the individual analysts's accuracy and precision related to the USEPA methods. The quality control sample is not to be used as a standard.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water or tap water to a two liter separatory funnel. Cool ampuls to 20 C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis.

The blank laboratory pure or tap water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure and tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL CHECK SAMPLE

TRUE VALUES

CHLORINATED HYDROCARBON PESTICIDES - I, (µg/L)

When diluted to volume according to instructions, the sample contains the following compounds at the concentrations expressed as µg/liter (ppb). The mean recovery ($\overline{X}$) and the standard deviation (S) are listed below with the true value and the 95% confidence interval (C.I.). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence interval represents the mean recovery plus or minus two standard deviations ($\overline{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Sample 3

Parameter	True Value	$\overline{X}$	S	95% C.I.
Endrin	2.00	1.86	0.29	1.28-2.44
Lindane	0.40	0.37	0.07	0.23-0.51
Methoxychlor	3.50	3.35	0.52	2.31-4.39

☆ U.S. GOVERNMENT PRINTING OFFICE: 1984—759-015/7274

WS
783

TAB PLACEMENT HERE

DESCRIPTION:

Pesticides II

Received: Mar 21 1985

☐ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

PESTICIDES I
Received: MAR 21 1985

U.S. Environmental Protections Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES -

Instructions for CHLORINATED HYDROCARBON PESTICIDES - II Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed. The quality control samples were prepared from the highest quality material available and were designed for the verified by the methodology stated in USEPA Manual 600/4-81-053, "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water or tap water to a two liter separatory funnel. Cool ampuls to 20°C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis.

A blank laboratory pure or tap water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure and tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

WS478

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES

CHLORINATED HYDROCARBON PESTICIDES - II, (µg/L)

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations expressed as µg/liter (ppb). The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below with the true value and the 95% confidence limit (C.I). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Sample 6

Parameter	True Value	($\bar{X}$)	(S)	95% C.I.
Toxaphene	6.00	5.32	1.14	3.04-7.60

Sample 8

Parameter	True Value	($\bar{X}$)	(S)	95% C.I.
Toxaphene	9.00	7.99	1.69	4.61-11.4

WS478

U.S. Environmental Protections Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES -

Instructions for CHLORINATED HYDROCARBON PESTICIDES - II Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed. The quality control samples were prepared from the highest quality material available and were designed for the verified by the methodology stated in USEPA Manual 600/4-81-053, "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water." Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

SAMPLE PREPARATION

To begin the analyses, add 1000 mL of laboratory pure water or tap water to a two liter separatory funnel. Cool ampuls to 20°C. Open the ampul by snapping the top off at the break area on the neck and add exactly 1.0 mL of the concentrate to the separatory funnel. Mix well. The sample is now ready for analysis.

A blank laboratory pure or tap water should be analyzed concurrently for background correction. Comparison of recoveries from laboratory pure and tap water is a check on possible interferences.

A sheet containing the statement of added levels is attached with the instructions for use as you desire. If there are any questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

WS478

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER SUPPLY QUALITY CONTROL SAMPLES

CHLORINATED HYDROCARBON PESTICIDES - II, (µg/L)

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations expressed as µg/liter (ppb). The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below with the true value and the 95% confidence limit (C.I). The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Performance Evaluation Studies.

Sample 6

Parameter	True Value	($\bar{X}$)	(S)	95% C.I.
Toxaphene	6.00	5.32	1.14	3.04-7.60

Sample 8

Parameter	True Value	($\bar{X}$)	(S)	95% C.I.
Toxaphene	9.00	7.99	1.69	4.61-11.4

WS478

TAB PLACEMENT HERE

DESCRIPTION:

Purgeables II

Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

PESTICIDES II
Received: MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for GC/MS PURGEABLES - II Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in EPA Manual 600/4-82-057, "Methods for Organic Chemical Analyses of Municipal and Industrial Wastewaters," - Method 624. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA methods. The quality control samples are not to be used as standards.

Enclosed you will find separate instructions for sample preparation, stock standard preparation and aqueous standard preparation.

A sheet containing a statement of true values is attached for use as you desire. If there are any technical questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

Recommended Procedures for Preparation of
Purgeable Quality Control Samples

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampuls to 20 C.

c. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle geometry will adversely affect the ability to deliver reproducible volumes.)

d. Open the ampuls by breaking the top off at the break area on the neck and immediately withdraw 25 µL and adjust to 20.0 µL.

e. Rapidly inject 20.0 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

f. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

g. Remove the plungers from two 5 mL syringes and attached a closed syringe valve to each.

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

h. Never use pipets to dilute or transfer this sample or aqueous standard.

i. Aqueous solutions when stored with a headspace are not stable and should be discarded after one hour.

WP
781

Recommended Procedure for Preparation of Purgeables
Aqueous Calibration Standards

In order to prepare accurate standard solutions, the following precautions must be observed.

a. Do not inject more than 20 µL of the alcoholic standards into 100 mL of organic-free water. Do not inject into organic-free water solvents that are immiscible such as hexane or methylene chloride.

b. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle goemetry will adversely affect the ability to deliver reproducible volumes.)

c. Rapidly inject the alcoholic standard into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the standard is injected into the neck area, poor results are obtained.

d. Mix aqueous standards by inverting the flask three times only. Excessive shaking results in loss of volatiles.

e. Remove the plungers from two 5 mL syringes and attach a closed syringe valve to each

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

f. Never use pipets to dilute or transfer this sample or aqueous standard.

h. Aqueous standards when stored with a headspace are not stable and should be discarded after one hour.

WP
781

Recommended Procedure for Preparation of Standard Stock Solutions for Purgeable Compounds

1. Place about 9.8 mL of methyl alcohol into a ground glass stoppered 10 mL volumetric flask.

2. Allow the flask to stand unstoppered about 10 minutes or until all alcohol wetted surfaces have dried.

3. Weigh the flask to the nearest 0.1 mg.

4. Using a 100 µL syringe, immediately add 2 drops of the reference standard to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

5. Dilute to volume, stopper, then mix by inverting the flask several times.

6. Transfer the solution to a dated and labeled 15 mL screw-cap bottle with a Teflon cap liner.

7. Calculate the concentration in micrograms per microliter from the net gain in weight.

8. Store the solution at 4 C.

NOTE: All standard solutions prepared in methyl alcohol are stable up to 4 weeks when stored under these conditions. They should be discarded after that time has elapsed.

NOTE: Because of the toxicity of the purgeables, it is necessary to prepare primary dilutions in a hood. It is further recommended that a NIOSH/MESA approved toxic gas respirator be used when the analyst handles high concentrations of such materials.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

GC/MS PURGEABLES - II

TRUE VALUES

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations expressed as µg/liter. The sample is considered to be the 100 mL volumetric flask.

Parameter	Sample #3 True Value	Sample #4 True Value
Methylene Chloride	9.2	40.0
1,1-Dichloroethene	10.0	20.8
Trans 1,2-Dichloroethene	5.4	55.2
1,2-Dichloroethane	5.4	25.0
Carbon Tetrachloride	10.0	26.6
1,2-Dichloropropane	8.0	40.0
Trichloroethene	10.2	49.6
Dibromochloromethane	6.0	29.6
1,1,2,2-Tetrachloroethane	10.0	50.6
Chlorobenzene	8.2	40.4

WP
781

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for GC/MS PURGEABLES - II Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in EPA Manual 600/4-82-057, "Methods for Organic Chemical Analyses of Municipal and Industrial Wastewaters," - Method 624. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the EPA methods. The quality control samples are not to be used as standards.

Enclosed you will find separate instructions for sample preparation, stock standard preparation and aqueous standard preparation.

A sheet containing a statement of true values is attached for use as you desire. If there are any technical questions or problems, please contact:

Quality Assurance Branch
Environmental Monitoring and Support Laboratory - Cincinnati
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

Recommended Procedures for Preparation of
Purgeable Quality Control Samples

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampuls to 20 C.

c. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle geometry will adversely affect the ability to deliver reproducible volumes.)

d. Open the ampuls by breaking the top off at the break area on the neck and immediately withdraw 25 µL and adjust to 20.0 µL.

e. Rapidly inject 20.0 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

f. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

g. Remove the plungers from two 5 mL syringes and attached a closed syringe valve to each.

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

h. Never use pipets to dilute or transfer this sample or aqueous standard.

i. Aqueous solutions when stored with a headspace are not stable and should be discarded after one hour.

WP
781

Recommended Procedure for Preparation of Purgeables
Aqueous Calibration Standards

In order to prepare accurate standard solutions, the following precautions must be observed.

a. Do not inject more than 20 µL of the alcoholic standards into 100 mL of organic-free water. Do not inject into organic-free water solvents that are immiscible such as hexane or methylene chloride.

b. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle goemetry will adversely affect the ability to deliver reproducible volumes.)

c. Rapidly inject the alcoholic standard into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the standard is injected into the neck area, poor results are obtained.

d. Mix aqueous standards by inverting the flask three times only. Excessive shaking results in loss of volatiles.

e. Remove the plungers from two 5 mL syringes and attach a closed syringe valve to each

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

f. Never use pipets to dilute or transfer this sample or aqueous standard.

h. Aqueous standards when stored with a headspace are not stable and should be discarded after one hour.

WP
781

Recommended Procedure for Preparation of Standard Stock Solutions for Purgeable Compounds

1. Place about 9.8 mL of methyl alcohol into a ground glass stoppered 10 mL volumetric flask.

2. Allow the flask to stand unstoppered about 10 minutes or until all alcohol wetted surfaces have dried.

3. Weigh the flask to the nearest 0.1 mg.

4. Using a 100 µL syringe, immediately add 2 drops of the reference standard to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

5. Dilute to volume, stopper, then mix by inverting the flask several times.

6. Transfer the solution to a dated and labeled 15 mL screw-cap bottle with a Teflon cap liner.

7. Calculate the concentration in micrograms per microliter from the net gain in weight.

8. Store the solution at 4 C.

NOTE: All standard solutions prepared in methyl alcohol are stable up to 4 weeks when stored under these conditions. They should be discarded after that time has elapsed.

NOTE: Because of the toxicity of the purgeables, it is necessary to prepare primary dilutions in a hood. It is further recommended that a NIOSH/MESA approved toxic gas respirator be used when the analyst handles high concentrations of such materials.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory - Cincinnati

WATER POLLUTION QUALITY CONTROL SAMPLES

GC/MS PURGEABLES - II

TRUE VALUES

When diluted to volume according to instructions, the samples contain the following compounds at these concentrations expressed as µg/liter. The sample is considered to be the 100 mL volumetric flask.

Parameter	Sample #3 True Value	Sample #4 True Value
Methylene Chloride	9.2	40.0
1,1-Dichloroethene	10.0	20.8
Trans 1,2-Dichloroethene	5.4	55.2
1,2-Dichloroethane	5.4	25.0
Carbon Tetrachloride	10.0	26.6
1,2-Dichloropropane	8.0	40.0
Trichloroethene	10.2	49.6
Dibromochloromethane	6.0	29.6
1,1,2,2-Tetrachloroethane	10.0	50.6
Chlorobenzene	8.2	40.4

WP
781

TAB PLACEMENT HERE

DESCRIPTION:

Volatile Organics

Received: Mar 21 1985

☒ Tab page did not contain hand written information

☐ Tab page contained hand written information
*Scanned as next image

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

VOLATILE ORGANICS
Received: MAR 21 1985

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for VOLATILE ORGANICS Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in USEPA Manual 660/4-82-057, "Methods for Organic Chemical Analysis of Municipal and Inudstrial Wastewaters," - Method 601. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

Two sample concentrates containing volatile organic compounds are enclosed. These concentrates are to be spiked into organic-free water and analyzed by gas chromatography for nine halogenated organic compounds present at microgram per liter levels in chlorinated drinking water. A separate sample is prepared from each concentrate.

Constituents are present in soluble form and should not be filtered. The concentrates have been preserved so that no changes occur in the sealed ampuls. However, the preservative treatment is not effective after dilution. Therefore, the samples should be analyzed soon after opening and diluting.

Enclosed you will find separate instructions for sample preparation, stock standard preparation and aqueous standard preparation.

A sheet containing a statement of true values is enclosed for use as you desire. If there are any technical questions or problems please contact:

Quality Assurance Branch
EMSL-Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

WP
483

Recommended Procedures for Preparation of Volatile Purgeable Quality Control Samples

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampuls to 20 C.

c. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle geometry will adversely affect the ability to deliver reproducible volumes.)

d. Open the ampuls by breaking the top off at the break area on the neck and immediately withdraw 25 µL and adjust to 20.0 µL.

e. Rapidly inject 20.0 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

f. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

g. Remove the plungers from two 5 mL syringes and attached a closed syringe valve to each.

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

h. Never use pipets to dilute or transfer this sample or aqueous standard.

i. Aqueous solutions when stored with a headspace are not stable and should be discarded after one hour.

WP
483

Recommended Procedure for Preparation of Standard Stock Solutions for Volatile Purgeable Compounds

1. Place about 9.8 mL of methyl alcohol into a ground glass stoppered 10 mL volumetric flask.

2. Allow the flask to stand unstoppered about 10 minutes or until all alcohol wetted surfaces have dried.

3. Weigh the flask to the nearest 0.1 mg.

4. Using a 100 µL syringe, immediately add 2 drops of the reference standard to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

5. Dilute to volume, stopper, then mix by inverting the flask several times.

6. Transfer the solution to a dated and labeled 15 mL screw-cap bottle with a Teflon cap liner.

7. Calculate the concentration in micrograms per microliter from the net gain in weight.

8. Store the solution at 4 C.

NOTE: All standard solutions prepared in methyl alcohol are stable up to 4 weeks when stored under these conditions. They should be discarded after that time has elapsed.

NOTE: Because of the toxicity of the purgeables, it is necessary to prepare primary dilutions in a hood. It is further recommended that a NIOSH/MESA approved toxic gas respirator be used when the analyst handles high concentrations of such materials.

Recommended Procedure for Preparation of Volatile Purgeables
Aqueous Calibration Standards

In order to prepare accurate standard solutions, the following precautions must be observed.

a. Do not inject more than 20 µL of the alcoholic standards into 100 mL of organic-free water. Do not inject into organic-free water solvents that are immiscible such as hexane or methylene chloride.

b. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle goemetry will adversely affect the ability to deliver reproducible volumes.)

c. Rapidly inject the alcoholic standard into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the standard is injected into the neck area, poor results are obtained.

d. Mix aqueous standards by inverting the flask <u>three times</u> only. Excessive shaking results in loss of volatiles.

e. Remove the plungers from two 5 mL syringes and attach a closed syringe valve to each

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

f. Never use pipets to dilute or transfer this sample or aqueous standard.

h. Aqueous standards when stored with a headspace are not stable and should be discarded after one hour.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

TRUE VALUES

VOLATILE ORGANICS, µg/liter

When diluted to volume according to instructions, the samples contain the following compounds at these concentration in µg/liter.

The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence limit. The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Method Validation Studies.

Sample 1

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
1,2-Dichloroethane	2.0	2.0	1.24	MDL - 4.48
Chloroform	12.0	10.8	2.03	6.7 - 14.9
1,1,1-Trichloroethane	1.4	1.1	0.59	MDL - 2.3
1,1,2-Trichloroethylene	2.9	2.8	1.20	0.4 - 5.2
Carbontetrachloride	2.6	2.5	0.89	0.7 - 4.3
1,1,2,2-Tetrachloroethylene	1.6	1.5	0.48	0.5 - 2.5
Bromodichloromethane	2.0	1.9	0.66	0.6 - 3.2
Dibromochloromethane	2.6	2.5	0.81	0.9 - 4.1
Bromoform	2.9	2.8	0.86	1.1 - 4.5

Sample 2

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
1,2-Dichloroethane	22.2	22.0	4.24	13.5 - 30.5
Chloroform	43.0	39.6	7.50	24.6 - 54.6
1,1,1-Trichloroethane	14.3	12.7	2.91	6.9 - 18.5
1,1,2-Trichloroethylene	12.0	10.6	2.67	5.2 - 16.0
Carbontetrachloride	10.0	9.6	2.31	5.0 - 14.2
1,1,2,2-Tetrachloroethylene	6.2	5.9	1.00	3.9 - 7.9
Bromodichloromethane	7.9	7.8	1.45	4.9 - 10.7
Dibromochloromethane	10.7	10.2	2.11	6.0 - 14.4
Bromoform	9.9	9.5	1.93	5.7 - 13.3

WP
483

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

Instructions for VOLATILE ORGANICS Analyses

CAUTION: Read Instructions Carefully Before Opening Ampuls.

The requested set(s) of quality control concentrates are enclosed in this package. The quality control samples were prepared from the highest quality material available and were designed for and verified by the methodology stated in USEPA Manual 660/4-82-057, "Methods for Organic Chemical Analysis of Municipal and Inudstrial Wastewaters," - Method 601. Any other method of analyses may yield different results and would not be applicable or valid to the given statistics. These samples are to be used as a means to check the individual analyst's accuracy and precision related to the USEPA methods. The quality control samples are not to be used as standards.

Two sample concentrates containing volatile organic compounds are enclosed. These concentrates are to be spiked into organic-free water and analyzed by gas chromatography for nine halogenated organic compounds present at microgram per liter levels in chlorinated drinking water. A separate sample is prepared from each concentrate.

Constituents are present in soluble form and should not be filtered. The concentrates have been preserved so that no changes occur in the sealed ampuls. However, the preservative treatment is not effective after dilution. Therefore, the samples should be analyzed soon after opening and diluting.

Enclosed you will find separate instructions for sample preparation, stock standard preparation and aqueous standard preparation.

A sheet containing a statement of true values is enclosed for use as you desire. If there are any technical questions or problems please contact:

Quality Assurance Branch
EMSL-Cincinnati
U.S. Environmental Protection Agency
Cincinnati, OH 45268

WP
483

Recommended Procedures for Preparation of Volatile Purgeable Quality Control Samples

READ CAREFULLY

If duplicate analyses are to be performed on one ampul, concurrently perform all the steps below in duplicate.

a. Fill a 100 mL volumetric flask to volume with organic-free 20 C water.

b. Stabilize the ampuls to 20 C.

c. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle geometry will adversely affect the ability to deliver reproducible volumes.)

d. Open the ampuls by breaking the top off at the break area on the neck and immediately withdraw 25 µL and adjust to 20.0 µL.

e. Rapidly inject 20.0 µL of the ampul concentrate into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the sample is injected into the neck area, poor results are obtained.

f. Mix the sample by inverting the flask three times only. Excessive shaking results in loss of volatiles.

g. Remove the plungers from two 5 mL syringes and attached a closed syringe valve to each.

   Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

   Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

h. Never use pipets to dilute or transfer this sample or aqueous standard.

i. Aqueous solutions when stored with a headspace are not stable and should be discarded after one hour.

WP
483

Recommended Procedure for Preparation of Standard Stock Solutions for Volatile Purgeable Compounds

1. Place about 9.8 mL of methyl alcohol into a ground glass stoppered 10 mL volumetric flask.

2. Allow the flask to stand unstoppered about 10 minutes or until all alcohol wetted surfaces have dried.

3. Weigh the flask to the nearest 0.1 mg.

4. Using a 100 µL syringe, immediately add 2 drops of the reference standard to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

5. Dilute to volume, stopper, then mix by inverting the flask several times.

6. Transfer the solution to a dated and labeled 15 mL screw-cap bottle with a Teflon cap liner.

7. Calculate the concentration in micrograms per microliter from the net gain in weight.

8. Store the solution at 4 C.

NOTE: All standard solutions prepared in methyl alcohol are stable up to 4 weeks when stored under these conditions. They should be discarded after that time has elapsed.

NOTE: Because of the toxicity of the purgeables, it is necessary to prepare primary dilutions in a hood. It is further recommended that a NIOSH/MESA approved toxic gas respirator be used when the analyst handles high concentrations of such materials.

Recommended Procedure for Preparation of Volatile Purgeables
Aqueous Calibration Standards

In order to prepare accurate standard solutions, the following precautions must be observed.

a. Do not inject more than 20 µL of the alcoholic standards into 100 mL of organic-free water. Do not inject into organic-free water solvents that are immiscible such as hexane or methylene chloride.

b. Use a 25 µL Hamilton 702N microsyringe or equivalent. (Variations in needle goemetry will adversely affect the ability to deliver reproducible volumes.)

c. Rapidly inject the alcoholic standard into the expanded area of the filled volumetric flask. Remove the needle as fast as possible after injection. If the standard is injected into the neck area, poor results are obtained.

d. Mix aqueous standards by inverting the flask <u>three</u> <u>times</u> only. Excessive shaking results in loss of volatiles.

e. Remove the plungers from two 5 mL syringes and attach a closed syringe valve to each

Open the 100 mL volumetric and discard the contents in the neck of the flask. From the 100 mL volumetric, carefully pour the sample into one of the syringe barrels until it overflows. Replace the syringe plunger and compress the sample. Open the syringe valve and vent any residual air while adjusting the sample volume to 5.0 mL. Close the valve.

Fill the second syringe in an identical manner from the same 100 mL volumetric. This second syringe is reserved for a duplicate analysis, if necessary.

f. Never use pipets to dilute or transfer this sample or aqueous standard.

h. Aqueous standards when stored with a headspace are not stable and should be discarded after one hour.

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory

WATER POLLUTION QUALITY CONTROL SAMPLES

TRUE VALUES

VOLATILE ORGANICS, µg/liter

When diluted to volume according to instructions, the samples contain the following compounds at these concentration in µg/liter.

The mean recovery ($\bar{X}$) and the standard deviation (S) are listed below along with the true value and the 95% confidence limit. The true value represents the actual weighing and all subsequent dilutions. The 95% confidence limit represents the mean recovery plus or minus two standard deviations ($\bar{X} \pm 2S$) and was developed from regression equations from Method Validation Studies.

Sample 1

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
1,2-Dichloroethane	2.0	2.0	1.24	MDL - 4.48
Chloroform	12.0	10.8	2.03	6.7 - 14.9
1,1,1-Trichloroethane	1.4	1.1	0.59	MDL - 2.3
1,1,2-Trichloroethylene	2.9	2.8	1.20	0.4 - 5.2
Carbontetrachloride	2.6	2.5	0.89	0.7 - 4.3
1,1,2,2-Tetrachloroethylene	1.6	1.5	0.48	0.5 - 2.5
Bromodichloromethane	2.0	1.9	0.66	0.6 - 3.2
Dibromochloromethane	2.6	2.5	0.81	0.9 - 4.1
Bromoform	2.9	2.8	0.86	1.1 - 4.5

Sample 2

Parameter	True Value	$\bar{X}$	S	95% Confidence Limits
1,2-Dichloroethane	22.2	22.0	4.24	13.5 - 30.5
Chloroform	43.0	39.6	7.50	24.6 - 54.6
1,1,1-Trichloroethane	14.3	12.7	2.91	6.9 - 18.5
1,1,2-Trichloroethylene	12.0	10.6	2.67	5.2 - 16.0
Carbontetrachloride	10.0	9.6	2.31	5.0 - 14.2
1,1,2,2-Tetrachloroethylene	6.2	5.9	1.00	3.9 - 7.9
Bromodichloromethane	7.9	7.8	1.45	4.9 - 10.7
Dibromochloromethane	10.7	10.2	2.11	6.0 - 14.4
Bromoform	9.9	9.5	1.93	5.7 - 13.3