

## REGION VIII STRATEGY FOR TOTAL TOXIC ORGANICS

June 29, 1999

### **BACKGROUND**

Control authorities are required to inspect and sample the effluent from each Significant Industrial User (SIU) at least once a year (40 CFR Section 403.8(f)(2)(v)). As stated in the final rule discussion [55 FR 30118] regarding Domestic Sewage Study amendments, EPA states that "The POTW should, ..., sample for all regulated pollutants discharged to the treatment works" and recognized the necessity of performing inspection and sampling at a minimum of once per year. Total Toxic Organics (TTOs) limits were established for the following categorical industries: Electroplating (40 CFR Part 413), Metal Finishing (40 CFR Part 433), Electrical and Electric Components (40 CFR Part 469), Copper Forming (40 CFR Part 468), Aluminum Forming (40 CFR Part 467), and Coil Coating (40 CFR Part 465). The type of pollutants that comprise the parameter TTOs vary according to the category, with many having certification and/or alternative testing requirements. Each category is discussed in the "**Guidance Manual for Implementing Total Toxic Organics (TTO) Pretreatment Standards, September 1985**".

EPA, Region VIII is providing further guidance for Control Authority sampling and inspection requirements to be applied, at a minimum, in Region VIII approved pretreatment programs. All questions concerning this Strategy should be directed to the Pretreatment Coordinator, (8P-W-P), Office of Partnerships and Regulatory Assistance, USEPA Region VIII, Suite 500, 999 18th Street, Denver, Colorado 80202.

### **CATEGORICAL INDUSTRIAL USER TTO REQUIREMENTS**

TTO is defined as the sum of the masses or concentrations of specific toxic organic compounds found in the Categorical Industrial User (CIU) discharges at >0.01 mg/l.

TTO monitoring must be submitted in the Baseline Monitoring Report (BMR) and 90 day Compliance Reports for CIUs subject to a TTO standard except for those facilities using the alternate oil and grease limits provided for in Aluminum

Forming, Copper Forming, and Coil Coating regulations. BMR requirements may be found at 40 CFR Section 403.12 (b) and 90 day compliance report requirements at 40 CFR 403.12(d).

Periodic compliance reports (40 CFR Section 403.12(e)) may allow the CIU to use an alternative for the TTO analysis depending on the category. See Table 1 for a summary of requirements.

### **Metal Finishing/Electroplating Category**

Categorical Industrial Users covered by the Electroplating or Metal Finishing regulations are required to evaluate TTOs as part of their BMR and 90 day compliance reports. Control Authorities must evaluate the data in the BMRs and 90-day compliance reports to determine which, if any, TTOs the CIU must analyze for in subsequent periodic compliance reports.

Should the CIU demonstrate through previous chemical sampling that no discharge of TTOs will occur, the approved program may, at its discretion, allow the CIU to certify that no TTOs were discharged. The certification must be on the periodic compliance reports and contain the exact language as shown at 40 CFR Sections 413.03(a) and 433.12(a)). In order for the CIU to certify, the CIU must develop, submit and implement an approvable Toxic Organic Management Plan (TOMP).

### **Control Authority Compliance Monitoring**

The Control Authority is required to inspect and sample the effluent from each Significant Industrial User (SIU) at least once a year to determine compliance with regulated pollutants. This sampling must be independent of the sampling performed by the industry and sufficient to allow for determination of compliance with permit limits by the Control Authority.

TTOs are regulated pollutants in the industrial categories cited earlier, and therefore, a compliance determination is necessary. In order for a Control Authority to determine compliance with Pretreatment Standards and requirements, it must ensure that compliance monitoring and the annual facility inspection compliment each other. Both the inspection and the compliance sampling should be unannounced activities.

There are several scenarios that may exist with regard to TTO compliance monitoring by the Control Authority:

1. **CIU is required to monitor for TTOs for periodic compliance reports:** Under this scenario, the Control Authority would perform compliance monitoring for all parameters that are required of the CIU. In addition, during the annual inspection, the Control Authority would confirm that the TTOs that the CIU must monitor for are still appropriate and representative of the TTOs that would be reasonably expected to be present based on a survey of raw materials the CIU has on-hand.

2. **CIU is approved to certify for TTOs**

Under this scenario, the CIU must have previously been required to demonstrate up-front that there are no TTOs present (e.g. through TTO sampling data on the BMR and 90-day compliance report).

The Control Authority would, as part of the annual inspection, verify that no TTOs are reasonably expected to be present in the discharge based on a thorough review of raw materials, process operations, etc.

The inspection form must document the following:

1. Chemical inventories;
2. Operating practices;
3. Changes in raw materials, products, etc.
4. \* Chemical characterization of raw materials

(chemicals);

5. \*\* Evaluation of the TOMP on-site;
6. Other information that the Control Authority deems relevant.

- \* Material Data Safety Sheets (MSDSs) would provide a significant portion of the information required. However, please note that many manufacturers do not include pollutants on the MSDS, if they comprise less than 5% of the product. Therefore, the industrial user may have to request a more complete analysis from the manufacturer.
- \*\* The CIU Toxic Organic Management Plan (TOMP) must be taken on-site during the inspection and reviewed to ensure that the practices are being followed and the TOMP is up-to-date.

If the Control Authority completes the items cited in this part, no sampling and analysis for TTOs are required as part of the annual evaluation. However, sampling and analysis should be undertaken as a result of any inspection or report indicating a change in discharge may have occurred.

### **SAMPLING FOR TTO'S**

Sampling for TTOs presents some inherent difficulties due to the diverse nature of the constituents comprising the TTO parameter. Compliance decisions require that when TTOs are sampled, a representative sample must be collected. There are two types of samples that are commonly collected: grab samples and composites. Grab samples are individual samples collected over a period of time not exceeding 15 minutes. Grab samples are useful when information about an instantaneous pollutant concentration is of interest or the type of pollutants of interest require grab samples, e.g. oil & grease, pH, volatile organics, etc.

Composite samples are a series of grab samples collected over a 24 hour period and combined proportionally to flow. Composite samples may also be collected by continuous sampling. Composite samples are generally used when

determining compliance with many categorical standards and local limits (daily average) or where wastewater characteristics are significantly variable.

Sampling requirements for the various TTOs is shown in Table 2.

NOTE: It is important to note that for parameters that require a 40 ml sample volume due to their volatile nature the samples should be collected in a glass vial and filled so that no air bubbles pass through the sample or remain in the bottle. The bottles must be sealed to prevent loss of volatiles.

NOTE: Contact your contract laboratory for bottles and minimum volumes required for each type of pollutant. The Table 2 values are guidelines.

NOTE: All analytical methods must be approved under 40 CFR Part 136. 40 CFR Section 136.3, Table II lists preservation, required containers, and holding times. Consult Table II prior to sampling.

NOTE: Refer to methods for specific testing protocols and individual pollutants covered by the particular test method. Many are listed in the TTO guidance document in Chapter 7.

### **Representative Samples**

For the determination of compliance with TTO standards the Control Authority and the CIU shall:

1. For parameters requiring grab samples, collect at least four grab samples during a 24 hour period (or workday) and composite the samples in the lab. The Control Authority and the CIU (after approval from the Control Authority) may use a single grab if: (1) The sampling is on a batch discharge and because of mixing, etc., the concentration of pollutants in the batch are relatively uniform; or (2) The discharge shows little daily variation (demonstrated by previous chemical sampling, **rare condition**).

2. For parameters requiring composite samples, collect a composite using the grab sampling technique described above or an automated continuous sampler during a 24 hour period (or workday).

Many programs may use a single grab as a screening tool for TTOs. However, the Control Authority must ensure that a representative sample is taken when compliance determinations are being made.

**TABLE 1**  
**SUMMARY OF TTO REQUIREMENTS**

CATEGORY	CFR REFERENCE	COMPLIANCE LIMIT (MG/L)	DATE	ALTERNATIVES
ELECTROPLATING	413	4.57 (<10K GPD) 2.13 (>10K GPD)	7/15/86 7/15/86	CERTIFY, TOMP* CERTIFY, TOMP*
METAL FINISHING	433	2.13	2/15/86	CERTIFY, TOMP*
ELECTRICAL AND ELECTRONIC COMPONENTS	469 (A&B) 469 (C)	1.37 1.58	7/1/84 7/1/86	CERTIFY, SOLVENT MGMT PLAN
COPPER FORMING	468	VARIES	8/15/86	OIL & GREASE
ALUMINUM FORMING	467	VARIES	10/24/83	OIL & GREASE
COIL COATING	465(D)	PRODUCTION BASED	11/17/86	OIL & GREASE

\* - TOXIC ORGANIC MANAGEMENT PLAN

**TABLE 2****SAMPLING REQUIREMENTS FOR TTOs**

<b>TTO</b>	<b>METHOD</b>	<b>GRAB OR COMPOSITE</b>	<b>MINIMUM VOLUME (ml)</b>	<b>MAX HOLDING TIME</b>
PURGEABLE HALOCARBONS	601	GRAB	40	14 DAYS
PURGEABLE AROMATICS	602	GRAB	40	14 DAYS
ACROLEIN & ACRYLONITRILE	603	GRAB	40	14 DAYS
PHENOLS	604	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
BENZIDINES	605	EITHER	1,000	7 DAYS
PHTHALATE ESTERS	606	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
NITROSAMINES	607	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
ORGANOCHLORINE	608	EITHER	1,000	7 DAYS, SEE 40



PERTICIDES \$ PCB				CFR 136.3
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CONTAINER TYPE: GLASS TEFLON-LINED SEPTUMS (FOR PURGEABLE HALOCARBONS AND AROMATICS) OR CAPS FOR OTHERS.

TTO	METHOD	GRAB OR COMPOSITE	MINIMUM VOLUME (ml)	MAX HOLDING TIME
NITROAROMATICS & ISOPHORONE	609	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
POLYNUCLEAR AROMATIC HYDROCARBONS	610	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
HALOETHERS	611	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
CHLORINATED HYDROCARBONS	612	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
2,3,7,8-TCCD	613	EITHER	1,000	7 DAYS, SEE 40 CFR 136.3
PURGEABLES	624	GRAB	40	14 DAYS
BASE/NEUTRAL AND ACIDS, AND PESTICIDES	625	EITHER	1000-2000	7 DAYS, SEE 40 CFR 136.3

NOTE: READ 40 CFR SECTION 136.3, TABLE II FOR PRESERVATIVES PRIOR TO SAMPLING