NON-MAIN STREAM REGULATIONS

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INTRODUCTION

Almost everyone is aware of the air, water, waste, and safety regulations that affect their plating and finishing operations; however, there are a number of lesser-known regulations that may have significant impact as well. This paper discusses several of these non-main stream regulations and their requirements; the author has selected the regulations that are reviewed, but cautions the reader these are not the only ones that exist or that may affect your operations.

This paper briefly reviews the following regulations:

1. EPA's Toxic Substances Control Act (TSCA) and Its Import/Export Rules
2. Drug Enforcement Agency's (DEA) Chemical Tracking and Reporting Requirements
3. International Chemical Weapons Treaty Act Notification Requirements
4. Nuclear Regulatory Commission Rules for Managing and Disposing of Beta and Gamma Thickness Gauges

NON-MAIN STREAM REGULATIONS

Toxic Substances Control Act (TSCA) § 12(b), 15 U.S.C. § 2611(b)

TSCA § 12(b) states that EPA notification is required if a person exports or intends to export to a foreign country a chemical substance or mixture. 15 U.S.C. § 2611(b) states that if a chemical substance or mixture is exported as part of or contained in an article, notice is not required unless specified by a rule.

Most platers and finishers, if involved with exporting, would be shipping articles, not chemicals per se and thus not subject to this regulation. However, if you supplied plating and/or finishing chemicals to customers, or if you ship these to one or more of your own facilities, in a foreign country, these regulations apply. Before proceeding, lets examine the definition of what constitutes an article and a mixture under these regulations.

TSCA: "…A manufactured item: (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes in composition which have no commercial purpose separate from that of the article and that may occur as described in – 710.4 (d) (5); except that fluids and particles are not considered articles regardless of shape or design."

TSCA: "…Any combination of two or more chemical substances if the combination does not occur in nature and is not, in whole or in part, the result of a chemical reaction is a mixture."

These definitions, in the regulations, have a number of caveats applied which, for simplicity, were not included above; refer to the specific regulatory text for more details.

If you export a chemical, then TSCA § 12(b) may require some form of reporting to the EPA. There are a host of reporting and notifications covered, but for the purpose of this paper I will focus on two: *TSCA § 4 and TSCA § 6.*

The EPA has prepared a listing of chemicals that require reporting under TSCA § 12(b) called the "CORR" List; this list includes over 1,000 chemicals. Under these regulations, there are no threshold values to trigger coverage; if the chemical is present, then it must be reported regardless of concentration.

Section 4 lists chemicals subject to special EPA Test Rules and exports of these require a one-time only per country notice of shipment to the EPA. Additionally, Section 4 Reports must include the following information:

- Name of Exporter
- Date Shipped
- Chemical Name
- Chemical Abstract Services Number (CAS#)
- Name of Country Exported To

Section 6 lists chemicals for which special rules have been proposed or promulgated and exports of these require annual per country notice of shipment to the EPA. Exactly the same information required under Section 4 is required under Section 6 to be submitted. However, Section 6 notices must be postmarked within seven days after accepting a definite contractual obligation to export and no later than the date of export.

All records of export notifications must be kept for five years.

Commentary

Now that I have "made your day" with this information, if it applies to your operations, I need to give you some more information that may increase your anxiety further. In March 1999, the EPA issued a memorandum titled: *Issuance of Revised Enforcement Response Policy for TSCA – 8, 12, and 13.* Penalties for violating provisions of these regulations, dependent upon EPA classification could be up to $6,600/ day/ chemical/ shipment/ country. There is no longer a first time amnesty allowed.

If you are planning to export a chemical, you need to review this regulation carefully. If you have historically exported chemicals covered under this regulation, but did not file required notifications, then I strongly urge you to contact your legal counsel in this regard as soon as possible.

DEA Controlled Substance Act, Title 21, Chapter 13, 21 U.S.C.S Section 802

This is often overlooked (by both regulators and users). Act has been on the books since 1970 with a number of more recent amendments having been implemented since then. For the most part, this requirement is invisible to most chemical end users as the manufacturer or distributor has the burden of reporting and tracking. This can impact on metal finishers where a firm may have foreign operations and where regulated chemicals are delivered to an U.S. Based Facility and then shipped from there to the foreign facility or vice versa.

Under this Act, are two different lists of chemicals that require reporting and tracking: List I chemicals, consumed in the actual manufacture of a controlled substance and List II chemicals, necessary to process a controlled substance.

List I Includes:

- Anthranilic Acid, its esters and salts.
- Bezl Cyamide
- Ephedrine, its salts, optical isomers and salts of optical isomers.
- Ergotamine and its salts.
- N-acetylanthranilic acid, its esters and salts.
- Nor psuedo ephedrine, its esters and salts.
- Phenylactic acid, its esters and salts.

- Phenylpropanolamine, its salts, optical isomers and slats of optical isomers.
- Piperidine and its salts.
- Psuedoephedrine, its salts. optical isomers and salts of optical isomers.
- 3,4-methylenedioxyphenyl-2-propane
- Methylamine
- Ethylamine
- Propionic Anhydride
- Insosafrole
- Safrole
- Piperonal
- N-methylephdrine
- N-methylpsudeoephdrine
- Hydriotic Acid
- Benzaldehyde
- Nitroethane

List II Includes:

- Acetic Anhydride
- Acetone
- Benzyl Chloride
- Ethyl Ether
- Potassium Permanganale
- 2-butanone
- Toluene

It is not likely metal finishers would be dealing with List I Chemicals, but List II Chemicals are often used significantly by metal finishers.

Major requirement is the need to register with the DEA, as an importer or exporter of these chemicals and to keep records on shipment quantities and chemical usage. Any significant determinations of chemical loss or diversion are to be reported to the DEA. For chemicals on List I, records of usage shall be kept for four years; for chemicals on List II, they must be kept two years.

The Attorney General may suspend or revoke a registration after showing cause, in which case, List I Chemicals can be either placed under seal with no disposition possible, until the case is legally resolved, or they may seized. Additionally, both civil and criminal charges can be filed for failure to comply.

Chemical Weapons Convention (CWC) Implementation Act of 1998, 15CFR Parts 710 – 722 and Amendments

This law is administered by the Commerce Department's Bureau of Export Administration and first became a reporting burden for U.S. Companies in the spring of 2000. This regulation is the result of the U.S. Senate Ratification of the International Chemical Weapons Convention in 1997. Under these rules, companies are mandated to file initial declarations and annual summaries for facilities that produce, process, or consume certain chemicals in amounts above specified thresholds.

The regulation required companies to file initial declarations by June 2000; most of the major chemical producers and weapons manufacturers have completed this requirement. However, many medium to small facilities have not and some are not even aware this requirement exists. Some 25,000+ chemicals are included on the listings of reportable chemicals and activities. This mass of chemicals is broken into four different categories: (a) Schedule 1 - Substance historically used in weapons production, (b) Schedule 2 – Chemicals that can be use for weapons production but that also have certain legitimate commercial uses, (c) Schedule 3 – Chemicals with significant legitimate uses that could be use in weapons production, and (d) Unscheduled discrete organic chemicals, [substances containing carbon].

See Appendix I for chemical listings.

Reporting of Schedule 1 Chemicals is required if more than 100 grams (aggregate) of the listed chemical was made, processed, or

consumed in the prior calendar year. Chemicals in this schedule are not likely to be used in metal finishing. Reporting of Schedule 2 Chemicals gets a little more complex; here the following table indicates quantity levels. Again, it is unlikely any of these are used in metal finishing operations.

Summary of Schedule 2 Quantity Thresholds		
Schedule 2 Chemical	Quantity Threshold for Declaration or Report on Production, Processing, Consumption, Exports or Imports	Quantity Thresholds for Declaration or Report on Exports to or Imports from a Foreign Destination
2A(3)	> 1Kg	>10 grams
2(A)(1) and (2)	> 100 Kg	> 1 Kg
2B	> 1 metric ton	> 10 Kg

Schedule 3 Chemical Reporting is required if more than 30 metric tons have been manufactured, processed, consumed, imported, or exported in the past calendar year. Some of these chemicals have legitimate use in metal finishing operations.

Summary of Schedule 3 Quantity Thresholds	Quantity
Quantity threshold for declaring or reporting production exports or imports.	> 30 metric tons
Quantity threshold for reporting exports to or imports from a foreign destination.	> 0.3 metric tons

Schedule 4 Chemical Reporting is required if more than 200 tons have been manufactured, processed, consumed, imported or exported in the past calendar year. This grouping does not have a specific listing of chemicals, instead the user is left to determine if his operations required reporting by using the CWC's definition of Unscheduled Discrete Organic Chemical (UDOC): "Any chemical (1) belonging to the class of chemical compounds consisting of all compounds of carbon except for its oxides, sulfides, and metal carbonates identifiable by name, by structural formula,…, and CAS#,…."

There are many more aspects to this than I have touched on here; generally, this would apply, if at all, with the larger metal finishers or to chemical suppliers to this industry. Nevertheless, if you are using any of these chemicals, it would be prudent to check to verify your supplier is in compliance to this requirement.

Nuclear Regulatory Commission (NRC) Standard for Portable Radioactive Testing Equipment, 10 CFR 20, 30, 31, and 32.

Many in the metal finishing industry use Beta and Gamma Scopes to measure thickness. All of these are regulated under NRC authority, although most states have been approved to oversee these requirements in their jurisdictions. This paper will briefly review some of the requirements that users must comply with.

1. If the radioactive source is above threshold levels, then you as a user, must be licensed by either the NRC or authorized state agency.

2. Each device, if licensed, must have a Radiation Symbol Warning Label affixed to it in plain view. Label must include device model #, serial #, the isotope, and quantity present and the words *"Caution – Radioactive Material".*

3. Licensed devices must be leak tested by a swipe test every six months, and on/off and indicator mechanisms must also be tested every six months. (Devices with less than 100 microcuries of beta or gamma or 10 microcuies of alpha material do not require testing.). All testing must be done by

licensed technician. Test records must be kept for three years.

4. The licensee must appoint a Radiation Safety Officer who is responsible to implement these requirements in the work place.

5. It is required to post a copy of Form 3 with NRC information on employee rights and hot line numbers.

6. Transfer and/or disposal of the device shall be only to another properly licensed company or authorized waste hauler. NRC must be notified if a licensed piece of equipment is to be disposed of; immediate notification to NRC is required if licensed material is lost or stolen.

7. Devices held in storage in original packages do not require testing; however when put back in to service or transferred, they must be tested for leakage. A licensee may not hold devices that aren't in use for longer than two years.

8. Worker exposure monitoring, if required by license, is applicable to NRC Limits not OSHA; NRC requires monitoring to begin at 500 MREMS or 10% of the Occupational Limits, whereas OSHA requires monitoring at 5 Rems or 25% of the Occupational Limit.

At the time of the writing of this paper, the NRC Website was shutdown, as a precaution against terrorism, and thus, I was unable to list additional references for this section.

SUMMARY

These four examples of "Non-Mainstream" Regulations show clearly that metal finishers, especially the small to medium sized operators need to stay alert to these other legal requirements. The best way to keep up with these is to work with your trade associations, state and local business groups or Chamber of Commerce and the AESF.

REFERENCES

TSCA

- Toxic Substance Control Act, 15 U.S.C. Sections 2601 et seq.

- EPA Export Regulations, 40 C.F.R. Part 707, Subpart D.

- *"The Enforcement Response Policy for Reporting and Record Keeping Rules and Requirements for TSCA Section 8, 12, and 13,"* - EPA Office of Regulatory Enforcement (March 31, 1999).

DEA

- Controlled Substances Act - Title 21, Chapter 13, 21 U.S.C.S. Section 802

- Public Law 103 – 200 - Domestic Chemical Diversion Control Act of 1993

NRC

- Nuclear Regulatory Commission Standards - 10 C.F.R. 20, 30, 30, 31, and 32.

APPENDIX I

SCHEDULE 1

	Toxic Chemicals	CAS Registry Number
1.	O-Alkyl ($\leq C_{10}$, Incl. Cycloalkyl) Alkyl (Me, Et, n-Pr or I-Pr)-Phosphonofluoridates	
	e.g. Sarin: O-Isopropyl Methylphosphonofluoridate	107-44-8
	Soman: O-Pinacolyl Methylphosphonofluoridate	96-64-0
2.	O-Alkyl ($\leq C_{10}$, Incl. Cycloalkyl) N,N-Dialkyl (Me, Et, n-Pr or i-Pr) Phosphoramidocyanidates	
	e.g. Tabun: O-Ethyl N,N-Dimethyl Phosphoramido-cyanidate	77-81-6
3.	O-Alkyl (H or $\leq C_{10}$, Incl. Cycloalkyl) S-2-Dialkyl (Me, Et, n-Pr or i-Pr)-Aminoethyl Alkyl (Me, Et, n-Pr or i-Pr) Phosphonothiolates and Corresponding Alkylated or Protonated Salts	
	e.g. VX: O-Ethyl S-2-Diisopropylaminoethyl Methylphosphonothiolate	50782-69-9
4.	Sulfur Mustards:	
	2-Chloroethylchloro-methylsulfide	2625-76-5
	Mustard Gas: Bis(2-Chloroethyl)Sulfide	505-60-2
	Bis(2-Chloroethylthio)Methane	63869-13-6
	Sesquimustard: 1,2-Bis(2-Chloroethylthio)Ethane	3563-36-8
	1,3-Bis(2-Chloroethylthio)-N-Propane	63905-10-2
	1,4-Bis(2-Chloroethylthio)-N-Butane	142868-93-7
	1,5-Bis(2-Chlorethylthio)-N-Pentane	142868-94-8
	Bis(2-Chloroethylthiomethyl) Ether	63918-90-1
	O-Mustard: Bis(2-Chloroethylthioethyl) Ether	63918-89-8
5.	Lewisites:	
	Lewisite 1: 2-Chlorovinyldichloroarsine	541-25-3
	Lewisite 2: Bis(2-Chlrovinyl)Chloroarsine	40334-69-8
	Lewisite 3: Tris(2-Chlorovinyl)Arsine	40334-70-1
6.	Nitrogen Mustards:	
	HN1: Bis(2-Chloroethyl) Ethylamine	538-07-8
	HN2: Bis(2-Chloroethyl) Methylamine	51-75-2
	HN3; Tris(2-Chloroethyl)Amine	555-77-1
7.	Saxitoxin	35523-89-8
8.	Ricin	9009-86-3
	Precursors	
9.	Alkyl (Me, Et, n-Pr or i-Pr) Phosphonyldifluorides	
	e.g. DF: Methyphosphonyl-difluoride	676-99-3
10.	O-Alkyl (H or $\leq C_{10}$, Incl. Cycloalkyl) O-2-Dialkyl (Me, Et, n-Pr-i-Pr)-Aminoethyl Alkyl (Me, Et, N-Pr or i-Pr) Phosphonitesand Corresponding Alkylated or Protonated Salts	
	e.g. QL: O-Ethyl O-2-Diisopropylaminoethyl Methylphosphonite	57856-11-8
11.	Chlorosarin: O-Isopropyl Methylphosphonochloridate	1445-76-7
12.	Chlorosoman: O-Pinacolyl Methylphosphonochloridate	7040-57-5

SCHEDULE 2

	Toxic Chemicals	CAS Registry Number
1.	Amiton: O,O-Diethyl S-[2-(Diethylamino)Ethyl]Phosphorothiolate and corresponding alkylated or protonated salts	78-53-5
2.	PFIB: 1,1,3,3,3-Pentafluoro-2-(Trifluoromethyl)-1-Propene	382-21-8
3.	BZ: 3-Quinuclidinyl Benzilate	6581-06-2
	Precursors	
4.	Chemicals, except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl, or propyl (normal or iso) group but not further carbon atoms.	
	e.g. Methylphosphonyl Dichloride	676-97-1
	Dimethyl Methylphos-phonate	756-79-6
	Exemption: Fonofos: O-Ethyl S-Phenyl Ethylphos-phonothiolothionate	944-22-9
5.	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) Phosphoramidic Dihalides	
6.	Dialkyl (Me, Et, n-Pr or i-Pr) N,N,Dialkyl(Me, Et, n-Pr or i-Pr)-Phosphoramidates	
7.	Arsenic Trichloride	7784-34-1
8.	2,2-Diphenyl-2-Hydroxyacetic A	1619-34-7
9.	Quincuclidine-3-ol	1619-34-7
10.	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) Aminoethyl-2-Chlorides and Corresponding Protonated Salts	
11.	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) Aminoethane-2-ols and Corresponding Protonated Salts	
	Exemptions: N,N-Dimethylamino-ethanol and Corresponding Protonated Salts	108-01-0
	N,N-Diethylaminoethanol and Corresponding Protonated Salts	100-37-8
12.	N,N-Dialkyl (Me, Et, n-Pr or i-Pr) Aminoethane-2-Thiols and Corresponding Protonated Salts	
13.	Thiodiglycol: Bis(2-Hydroxyethyl)Sulfide)	111-48-8
14.	Pinacolyl Alcohol: 3,3-Dimethylbutane-2-ol	464-07-3

SCHEDULE 3

	Toxic Chemicals	CAS Registry Number
1.	Phosgene: Carbonyl Dichloride	75-44-5
2.	Cyanogen Chloride	506-77-4
3.	Hydrogen Cyanide	74-90-8
4.	Chloropicrin: Trichloronitromethane	76-06-2
	Precursors:	
5.	Phosphorus Oxychloride	10025-87-3
6.	Phosphorus Trichloride	7719-12-2
7.	Phosphorus Pentachloride	10026-13-8
8.	Trimethyl Phosphite	121-45-9
9.	Triethyl Phosphite	122-52-1
10.	Dimethyl Phosphite	868-85-9
11.	Diethyl Phosphite	762-04-9
12.	Sulfur Monochloride	10025-67-9
13.	Sulfur Dichloride	10545-99-0
14.	Thionyl Chloride	7719-09-7
15.	Ethyldiethanolamine	139-87-7
16.	Methyldiethanolamine	105-59-9
17.	Triethanolamine	102-71-6