

ENGINEERING EVALUATION REPORT
Unitek, Inc; SITE NUMBER A9006
APPLICATION NUMBER 23623

I. BACKGROUND:

Unitek is an Electronics Manufacturing Services (EMS) provider, offering contract manufacturing services to their clients. The company has submitted an application for an Authority to Construct/Permit to Operate:

S-5 Wave Solder Machine w/ Flux Applicator and Finger Cleaning Operation,
Technical Devices NU/ERA MP

This source started operation without requisite District permits on June 1, 2011. Pursuant to District Regulations 3-303 and 3-318, the applicant has been assessed a back permit to operate fee and a late charge for S-5.

II. EMISSION CALCULATIONS:

The S-5 Wave Solder Machine is projected to use 200 gallons of flux and 100 gallons of isopropyl alcohol (IPA) per year. From the MSDS, the flux is comprised of practically all IPA. For a conservative estimate of IPA emissions, the flux will be assumed to be 100% IPA. The finger cleaning operation utilizes IPA as the cleaning solvent. Emissions are:

$$\begin{aligned} (300 \text{ gal IPA/yr}) \times (6.53 \text{ lb VOC/gal}) &= \mathbf{1959 \text{ lbs/yr of POC (0.98 ton/yr)}} \\ (1959 \text{ lb/yr POC}) / 365 \text{ day/yr} &= \mathbf{5.37 \text{ lb/day annual avg}} \\ (1959 \text{ lb/yr POC}) / 260 \text{ day/yr} &= \mathbf{7.53 \text{ lb/day (each) max daily}} \end{aligned}$$

III. EXEMPT OPERATIONS:

None

IV. CUMULATIVE EMISSIONS:

	Current (ton/yr)	New (ton/yr)	Total New (ton/yr)
PM	0	0	0
POC	0.94	0.98	1.92
NO _x	0	0	0
SO ₂	0	0	0
CO	0	0	0
NPOC	0	0	0
PM ₁₀	0	0	0

V. APPLICABLE REQUIREMENTS:

A. General Requirements; Regulation 2, Rule 1

1. Public Schools (2-1-412)

The project is located within 1000 feet from the Warm Springs Elementary School located at 47370 Warm Springs Blvd, Fremont, CA 94539. The project is subject to the public notification requirements due to the proximity of the S-5 Solder Machine to the Warm Springs Elementary School.

A. New Source Review; Regulation 2, Rule 2

1. Best Available Control Technology Requirements (2-2-301)

A Best Available Control Technology (BACT) review is required for any new or modified source which results in a cumulative emissions increase for POC, NPOC, NO_x, SO₂, PM₁₀, or CO of greater than 10 pounds per highest day since April 5, 1991 pursuant to Regulation 2-2-301.

Source S-5 will emit less than 10 pounds per day of POC. Thus, this source is not subject to BACT requirements.

2. Offset Requirements (2-2-302)

Offset credits must be provided for any new or modified source of POC or NO_x emissions at facilities which emit more than 15 tons per year of these pollutants. The District may provide offsets for facilities with POC or NO_x emissions between 15 and 50 tons per year as long as the facility has no available offset credits and all existing sources of POC and/or NO_x are equipped with Best Available Retrofit Control Technology (BARCT).

Total facility emissions, including this project, are less than 15 tons per year of POC or NO_x. Therefore, offsets are not required.

3. PSD Requirements (2-2-304)

Electronic Assembly/Soldering Industry is not one of the 28 PSD source categories listed in Section 169(1) of the Federal Clean Air Act. Therefore, PSD (Prevention of Significant Deterioration) will not apply unless the facility has emissions of 250 tons per year or more of a regulated air pollutant. This facility will emit less than 250 tons/year of pollutants; therefore, PSD does not apply.

B. Toxic Risk Assessment; Regulation 2, Rule 5

S-5 will comply with Regulation 2-5 by emitting toxic compounds in quantities less than the risk screen trigger levels listed in Table 2-5-1 (see table below) Therefore, the increase in health risks is considered insignificant and a toxic risk screen is not required and TBACT does not apply.

Toxic Air Contaminant	S-5 Emissions (lb/hr)	Chronic Trigger Level (lb/hr)	Triggered?	S-5 Emissions (lb/year)	Chronic Trigger Level (lb/year)	Triggered?
Isopropanol	0.94	7.1	No	1,959	270,000	No

C. Organic Compounds, Regulation 8

General Solvent and Surface Coating Operations

S-5 subject to the requirements of Regulation 8, Rule 4, General Solvent and Surface Coating Operations. This regulation limits VOC emissions from any source to 5 tons per year (unless controlled by at least 85% on a mass basis) or requires the use of coatings with a VOC content of 420 grams per liter (3.5 lb/gal) or less. Record keeping is required on an annual basis. S-5 will emit less than 5 tons per year of organic compounds. Therefore, S-5 will comply with Regulation 8 Rule 4 Section 302.1.

D. Federal Requirements

S-5 is not currently subject to any New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPS). As discussed above, PSD does not apply.

VI. PERMIT CONDITIONS:

1. The net usage of flux and thinner at S-5 Wave Solder Flux Applicator shall not exceed 300 gallons during any consecutive 12 month period:
[basis: cumulative emissions]
2. The owner/operator of S-5 shall minimize emissions by covering or emptying the flux bath when the Flux Applicator is not operating.
[basis: Regulation 8-4-312]
3. In order to demonstrate compliance with Condition #1, the owner/operator of S-5 shall maintain the following records in a District approved log. These records shall be kept on site and made available for District inspection for a period of 24 months from the date that the record was made.
 - a. Monthly records of the type and amount of fluxes and thinners added to the flux applicator.
 - b. Monthly records of the amount of materials removed from the flux applicator.
 - c. Monthly summary of net solvent usage (the difference between a. and b.)
[basis: Regulation 8-4-501]

VII. RECOMMENDATIONS:

It is recommended that Permits to Operate be issued to Unitek for the following:

S-5 Wave Solder Machine w/ Flux Applicator and Finger Cleaning Operation,
Technical Devices NU/ERA MP

By: _____
Weyman Lee
Senior Air Quality Engineer