

DRAFT ENGINEERING EVALUATION
L-3 Communications SSG- Tinsley, Plant: 7234
4040 Lakeside Drive, Richmond CA 94511
Application: 19928

Background

Tinsley Laboratories is applying for a Permit to Operate for an acid etch workstation located at Building 4040.

Equipment to be permitted:

S31– Acid Etch Workstation, Building 4040

S31 consists of a 40-gallon acid tank containing etching solution and a 40-gallon water rinse tank containing deionized water. Because S31 utilizes a buffered oxide etch, which is composed of 30-50% ammonium fluoride and 0.5-5% hydrogen fluoride, it is not exempt from permitting pursuant to Regulation 2-1-127.4.

Toxics Emissions Calculations

Emissions of fluoride and nitric acid are estimated using the highest measured concentrations (mg/m³) from Personnel Exposure Monitoring conducted on existing S23 Acid Etch Workstation. Using measured toxic emission rates at S23 as a surrogate for the levels at S31 provides conservative emissions estimates because S23 has a greater capacity (consisting of one 66-gallon acid tank and three 66-gallon deionized water tanks) than S31. Assuming that the highest measured concentrations of fluoride and nitric acid are exhausted to the roof stack (which has a measured volumetric flow rate of 27 m³/min), and that emissions occur continuously throughout an entire year, yields “worst-case scenario” emissions estimates.

S31 Toxic Emissions (Acute)

Chemical	Emission Factor		Stack Flow Rate		Unit Conversions		Emissions	Reg. 2-5 Acute Trigger Level	Risk Screen Required? (Yes/No)
Flourides	0.0052	(mg/m ³) x	27	(m ³ /min) x	60	(min/hr) x ÷ 453600 (mg/lb) =	0.00002 lb/hr	0.53 lb/hr	No
Nitric Acid	4.89	(mg/m ³) x	27	(m ³ /min) x	60	(min/hr) x ÷ 453600 (mg/lb) =	0.0175 lb/hr	0.19 lb/hr	No

S31 Toxic Emissions (Chronic)

Chemical	Emission Factor		Stack Flow Rate		Unit Conversions			Emissions	Reg. 2-5 Chronic Trigger Level	Risk Screen Required? (Yes/No)
Flourides	0.0052	(mg/m ³) x	27	(m ³ /min) x	60	(min/hr) x	8760 (hr/yr) ÷ 453600 (mg/lb) =	0.163 lb/yr	500 lb/yr	No

Criteria Pollutant Emissions Summary

The daily maximum emissions are summarized in the table below.

Operation Daily Maximum Emissions (lb/day)						
Pollutant	NOx	NPOC	POC	CO	SO ₂	PM ₁₀
S31	0	0	0	0	0	0

BACT Review and Determination

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NOx, CO, SO₂ or PM₁₀.

BACT is not required for POC, NPOC, NOx, CO, SO₂ or PM₁₀ because no criteria pollutant emissions will result from the operation of S31.

Plant Cumulative Increase and Offsets

The cumulative increase is shown below. Pursuant to Regulation 2-2-302, offsets are required for any increase in emissions at a facility that emits over 10 tons per year of POC or NOx, or is located at a Major Facility and is over 1.0 ton per year since April 5, 1991 for PM10 or SO2. This facility does not emit over 10 tons per year of POC or NOx, so offsets are not required.

Plant Cumulative Emissions (ton/yr)						
Pollutant	NOx	NPOC	POC	CO	SO ₂	PM ₁₀
Previous Emissions	0	0.656	8.611	0	0	0
S31	0	0	0	0	0	0
Cumulative Total	0	0.656	8.611	0	0	0

Statement of Compliance

Toxics NSR/TBACT

This source is subject to the Toxic Risk Provisions of Regulation 2-5. A Health Risk Screening Analysis is not required because toxic emissions do not exceed the trigger levels.

District Rules

Pursuant to Regulation 2-1-127.4, S31 Acid Etch Workstation is subject to District permitting requirements because it utilizes ammonium-based etchants.

Federal Rules

PSD, NESHAPS, and NSPS are not triggered for this source.

CEQA

This application is considered to be ministerial under the District's Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 4.

Public Notices

This facility is located 1000 feet of the nearest school and therefore is subject to public school notification pursuant to Regulation 2-1-412, Public Notice, Schools. The notice was distributed on (DATE). It expired on (DATE). (COMMENTS HERE) The District response is that the project meets all requirements and therefore the project is approvable.

Recommendation

Waive Authority to Construct and issue a Permit to Operate to L-3 Communications SSG- Tinsley, for:

S31– Acid Etch Workstation, Building 4040

Permit Conditions

No permit conditions are required for S31 because of low emissions levels.

By: _____
Jimmy Cheng
Air Quality Engineer I

Date: 2/11/09 _____