Background:

Avid Bioservices, Inc., (Avid) is a Contract Development and Manufacturing Organization (CDMO) with over 29 years of biologics development experience and 20 years as a biopharmaceutical CDMO experience in Orange County California. Avid has extensive experience leading their clients through manufacturing process validations and has a long (more than 16 years) commercial manufacturing history working with both large and small pharmaceutical organizations. Avid possesses extensive expertise in transitioning molecules through the product life cycle from early development into commercial manufacturing. Currently, Avid operates over 100,000 ft^2 of laboratory manufacturing space at the Tustin, California facility. Avid is planning to open 53,000 ft^2 of an expanded CDMO services at the Costa Mesa facility which will produce potentially life saving therapies on site.

Process Description:

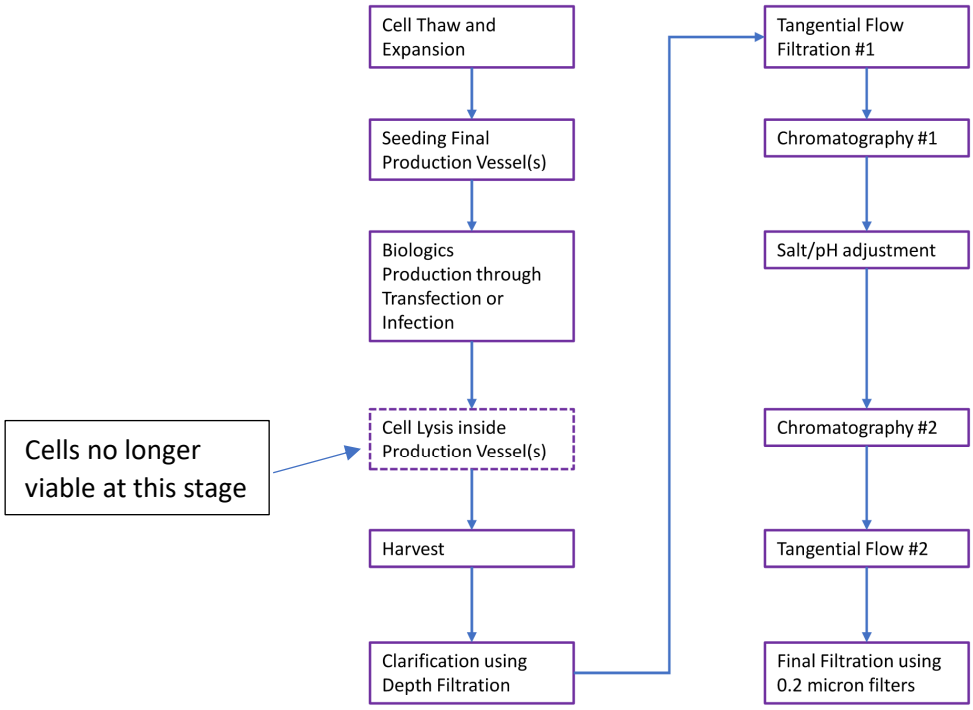
Avid's manufacturing process requires a sterile environment to produce its vectors for the cell and gene therapy markets. The facility will operate both bench scale lab operations and clean room manufacturing, similar to Avid's existing Tustin facility. The clean room environment is maintained with HEPA filtered air and defined air pressure differentials to maintain a "clean" manufacturing environment. These pressure differentials provide for a sterile manufacturing environment within the suite. Additionally, Avid will install a back-up emergency generator to maintain these pressure differentials and clean manufacturing areas in the event of a power outage. Avid's manufacturing process entails the use of enclosed bioreactors to provide optimal growth conditions and enclosed operations post cell growth. As a result, the entire manufacturing process is enclosed in growth vessels which vent through a 0.2 micron filter to prevent product aerosols from unintentionally being released form the bioreactors and to provide optimal growth in safe conditions to prevent contamination from the outside environment affecting the growth of the product.

Avid's chemical handling practices include the use of fume hoods during handling, appropriate storage when not in use and employee training in chemical safety and spill response. All containers are kept closed unless adding or accumulating and precautions are taken when transporting hazardous materials. Secondary containment is used for storage where appropriate. Spill kits are available throughout the facility.

Due to vessel's 0.2 micron exhaust filtration, process controls, facility pressurization design, waste sump system to contain liquid waste disposal prior to treatment and disposal, safe chemical handling practices, employee training and spill response procedures in place, Avid does not anticipate the unintended release of any production related material or chemical to the environment.

The diagram below displays the general production flow in the clean room manufacturing suites of the Costa Mesa facility. The process is contained within primary vessels or containers and a secondary container to maintain both sterility and safety of operations. The containerization of the material throughout the production is the standard operating process throughout the facility.

Biologics Production Outline



On site Chemical Storage and Usage:

Raw chemicals will typically be received and maintained on site in containers not exceeding 1 gallon for liquids and 10 lbs for solids, with a few minor exceptions. Any biological material received will be delivered frozen by courier (FedEx or similar) in an insulated box not exceeding 1 ft^3. The only chemicals maintained in quantities that require reporting to the Orange County Certified Unified Program Agencies (CUPA) through the California Environmental Reporting System (CERS) are the following:

Common Name	CAS	State	Maximum Daily Quantity	Quantity
Oxygen	7782-44-7	Gas	460 ft^3	2 cylinders
Liquid nitrogen	7727-37-9	Liquid	121 gallons	2 dewars
Carbon Dioxide	124-38-9	Gas	460 ft^3	2 cylinders
WASTE - Flammable Liquids		Liquid	55 gallons	1 drum

The remaining chemicals used on site will be predominantly nutrient media, buffers and salts for cell growth, purification and agents to provide facility disinfection as required for a sterile manufacturing environment.

No chemical classes will be stored on site in excess of permitted quantities regulated by the Orange County Fire Authority, as specified in California Fire Code Table 5003.1.1. See Chemical Classification and Summary Report in attachment 1 and the 2019 CBC.

Waste Generation and Disposal:

Any hazardous wastes generated on site will be removed by a licensed hazardous waste hauler to a permitted disposal facility. Currently at the Tustin facility, Avid does not generate routine hazardous waste in quantities that would be designated as a large quantity generator by the State of California. It is anticipated that the Avid Costa Mesa site will not be considered a large quantity generator of hazardous waste either. The only anticipated hazardous waste to be routinely generated on site will be flammable liquids (alcohols). It is anticipated that these drums of flammable waste will be periodically shipped off site by a licensed hazardous waste hauler.

All consumable solid material used in the manufacturing process will be removed periodically as a regulated waste by a licensed waste hauler to an appropriate disposal facility.

Avid will be installing a waste neutralization system to ensure production drainage to the sanitary sewer will be maintained within permitted specifications, as determined by the Orange County Sanitation District. Avid currently maintains wastewater permit (1-571332) from the Orange County Sanitation District for the waste neutralization system in operation at the Tustin facility and will be installing a similar system at the Costa Mesa facility. Avid is currently in discussion with OCSD and Costa Mesa Sanitation District regarding sewer disposal for the facility. The largest quantity of waste generated on site will be disposed of to the sanitary sewer. See Burt Operators Manual in attachment 2.

Emergency Response:

Avid maintains an Emergency Response Contingency Plan that is reviewed and approved by the Orange County Fire Authority (CUPA). Within this plan are requirements for specific training and response procedures that all laboratory and manufacturing staff receives annually. Avid maintains ample spill response and containment supplies to keep any spill contained within the production facility. See Avid Emergency Response and Contingency Plan in attachment 3.

Environmental Permitting:

Avid has initiated the process of obtaining a California EPA ID for the disposal of any hazardous wastes.

Avid has initiated the process of obtaining an industrial waste permit from the Orange County Sanitation Department and the Costa Mesa Sanitation Department for the disposal of any material to the sanitary sewer.

Avid has initiated the process of obtaining a California Environmental Reporting Service (CERS) permit for the possession of all reportable hazardous materials.

Avid has prepared a chemical classification report and summary for review by the Orange County Fire Authority.

If you have any questions, do not hesitate to contact the undersigned individual.

Michael Alston Jr.

Digitally signed by Michael Alston Jr.
Location: Director, Project Engineering
Contact Info: Avid Bioservices
Date: 2022.02.08 11:39:51-08'00'

_____ _____

Avid Representative Date

Attachment 1

Avid Biosciences: Hazardous Chemical Inventory

December 2021

Executive Summary

Avid Biosciences (Avid), through Kasai Consulting provided Zova with a list of approximately 1060 chemical/product names and quantities for 1 Control Area. Of these Zova determined that 150 unique chemical/product entries met CFC reporting standards. All hazard categories appear to be within aggregate Maximum Allowable Quantities per CFC 5003.1.1(1) and 5003.1.1(2) assuming buildings are equipped throughout with an approved automatic sprinkler system in accordance with CFC 903.3.1.1. Avid should review this Hazardous Chemical Inventory and the assumptions made to ensure that these are representative of the Avid inventory.

Assumptions:

1. Missing quantities assigned: 460 CF each for Carbon Dioxide, Oxygen and Compressed air; 460 L for Liquid Nitrogen; 25 Gal for Flammable Hazardous Waste
2. Sodium Cyanoborohydride from Aldrich was assumed to be in 1M THF

Scope:

Provide Hazardous Chemical Inventory tables for 1 Control Area provided by Avid. As agreed to by Avid:

1. Physical State (Solid, Liquid, Gas), if not provided, is ascertained by retrieved Safety Data Sheet (SDS) or if ambiguous, based upon Avid supplied Product Numbers or Units.
2. Concentrations: Unless stated or determined by SDS, we assume 95+%.
3. Solvents: Unless stated in Avid supplied chemical list or SDS, we will assume most common solvent based on reputable chemical supplier's SDS. If ambiguous we will assume most hazardous solvent unless otherwise stated.
4. Hazardous information is based upon government supplied information (e.g. CERS) and/or SDS retrieved from reputable chemical supplier (typically Sigma, Fisher, Matrix Scientific etc.).

Report contents:

1. Summary of abbreviations used in the report
2. Hazardous Chemical Inventory including summary table
3. Appendix: *California Fire Code Table 5003.1.1: Maximum Allowable Quantity per Control Area of Hazardous Materials*

Summary of abbreviations used in the report

Abbreviation	CFC Hazard Class
CF	Combustible Fibers
CG	Compressed Gases - Inert
CL2	Combustible Liquids II
CL3A	Combustible Liquids III-A
CL3B	Combustible Liquids III-B
CR	Corrosives
CRY	Cryogenic Fluids
EX	Explosives
FG	Flammable Gases
FL1A	Flammable Liquids I-A
FL1B	Flammable Liquids I-B
FL1C	Flammable Liquids I-C
FL1C/CL2	FL1C OR CL2: Cannot distinguish by information provided in SDS
FS	Flammable Solids
HT	Highly Toxics
OP	Organic Peroxides - Unclassified Detonable
OP1	Organic Peroxides I
OP2	Organic Peroxides II
OP3	Organic Peroxides III
OP4	Organic Peroxides IV
OP5	Organic Peroxides V
OX1	Oxidizers 1
OX2	Oxidizers 2
OX3	Oxidizers 3
OX4	Oxidizers 4
OXG	Oxidizer Gas, Gaseous
PY	Pyrophorics
TX	Toxics
UR1	Unstable Reactives 1
UR2	Unstable Reactives 2
UR3	Unstable Reactives 3
UR4	Unstable Reactives 4
WR1	Water Reactives 1
WR2	Water Reactives 2
WR3	Water Reactives 3

Other abbreviations:

ns	SDS does not state relevant properties
n/a	not applicable
FP	Flash Point
BP	Boiling Point
MP	Melting Point
MAQ	Maximum Allowable Quantity
CFC	California Fire Code

Avid Biosciences
Hazardous Chemical Inventory 2021

1. Summary of CFC categories for **Control Area 1**

2. Hazardous Chemical Inventory Tables for Avid Biosciences

Avid Biosciences CONTROL AREA 1: Chemical Inventory Hazards Summary

Summary of CLOSED IN-USE Hazardous Materials (YELLOW exceeds CFC limits)

	CLASS		Open IN-USE			Closed IN-USE			Storage			Aggregate MAQ* per CFC 5003.1.1(1), 5003.1.1(2)
			Solid (lb)	Liquid (gal)	Gas (cu.ft.)	Solid (lb)	Liquid (gal)	Gas (cu.ft.)	Solid (lb)	Liquid (gal)	Gas (cu.ft.)	
PHYSICAL HAZARDS	Combustible Fiber	CF	0	0	0	0	0	0	0	0	0	100 CF
	Combusitble Liquid II	CL2	0	0	0	0	59.76	0	0	0	0	240 gal
	Combusitble Liquid IIIA	CL3A	0	0	0	0	1.74	0	0	0	0	660 gal
	Combusitble Liquid IIIB	CL3B	0	0	0	8.82	12.87	0	0	0	0	13200 gal
	Compressed Gas	CG	0	0	0	0	0	1380	0	0	0	NL
	Cryogenics	CRY	0	0	0	0	121.52	0	0	0	0	NL
	Explosives	EX	0	0	0	0	0	0	0	0	0	0.25 lb
	Flammable Cryogenic Liquids	FCL	0	0	0	0	0	0	0	0	0	90 gal
	Flammable Gas	FG	0	0	0	0	0	0.07	0	0	0	2000 CF
	Flammable Liquid IA	FL1A	0	0	0	0	0	0	0	0	0	60 gal
	Flammable Liquid IB	FL1B	0	0	0	0	159.85	0	0	0	0	240 gal
	Flammable Liquid IC	FL1C	0	0	0	0	8.31	0	0	0	0	240 gal
	Flammable Solids	FS	0	0	0	0.55	0	0	0	0	0	250 lb
	Organic Peroxide (UD)	OP	0	0	0	0	0	0	0	0	0	0.25 lb, 0.025 gal
	Organic Peroxide I	OP1	0	0	0	0	0	0	0	0	0	2 lb, 0.2 gal
	Organic Peroxide II	OP2	0	0	0	0	0	0	0	0	0	100 lb, 10 gal
	Organic Peroxide III	OP3	0	0	0	0	0	0	0	0	0	250 lb, 25 gal
	Organic Peroxide IV	OP4	0	0	0	0	0	0	0	0	0	NL
	Organic Peroxide V	OP5	0	0	0	0	0	0	0	0	0	NL
	Oxidizer Class 4	OX4	0	0	0	0	0	0	0	0	0	0.25 lb, 0.025 gal
	Oxidizer Class 3	OX3	0	0	0	0	0.40	0	0	0	0	4 lb, 0.4 gal
	Oxidizer Class 2	OX2	0	0	0	7.72	3.87	0	0	0	0	500 lb, 50 gal
	Oxidizer Class 1	OX1	0	0	0	0.66	2.51	0	0	0	0	4000 lb, 400 gal
	Oxidizing Gas	OXG	0	0	0	0	0	460	0	0	0	3000 CF
	Pyrophorics	PY	0	0	0	0	0	0	0	0	0	1 lb, 0.1 gal
	Unstable Reactive 4	UR4	0	0	0	0	0	0	0	0	0	0.25 lb, 0.025 gal
	Unstable Reactive 3	UR3	0	0	0	0	0	0	0	0	0	2 lb, 0.2 gal
	Unstable Reactive 2	UR2	0	0	0	0	0	0	0	0	0	100 lb, 10 gal
	Unstable Reactive 1	UR1	0	0	0	1.10	0	0	0	0	0	NL
	Water Reactive Class 3	WR3	0	0	0	0	0	0	0	0	0	10 lb, 1 gal
	Water Reactive Class 2	WR2	0	0	0	0	2.38	0	0	0	0	100 lb, 10 gal
	Water Reactive Class 1	WR1	0	0	0	148.81	0	0	0	0	0	NL
HEALTH HAZARDS	Highly Toxic	HT	0	0	0	0.55	0.13	0	0	0	0	20 lb, 2 gal
	Toxic	TX	0	0	0	34.96	23.32	0	0	0	0	1000 lb, 100 gal
	Corrosive	CR	0	0	0	175.73	50.93	0	0	0	0	10000 lb, 1000 gal

* Assumes buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1

Avid Biosciences Hazardous Chemical Inventory: CONTROL AREA 1

1 CHEMICAL NAME	2 CAS#	3 CONC (%)	STATE	4 CLASSIFICATION (CD/CF/CL=Combustible Dust/Fiber/Liquid; CG=Compressed Gas; CR=Corrosive; CRY=Cryogenic Liq; EX=Explosive; FL/FS/FG=Flammable Liq/Solid/Gas; HT=Highly Toxic; OP=Organic Peroxide; OX=Oxidizer, OXG=Oxidizing Gas; PY=Pyrophoric; T=Toxic; UR=Unstable Reactive; WR=Water Reactive)	5 PROPERTIES (ns=Not Specified in SDS; FP=Flash Pt; BP=Boiling Pt)	6 QUANTITIES IN USE-OPEN SYSTEM	IN USE-CLOSED SYSTEM	STORAGE	Units	7 LOCATION (Room)
1-Butylamine, 99%	109-73-9	95+	L	CR, FL1B, TX	ns		0.053		gal	
1-Propanol HPLC Grade	71-23-8	95+	L	FL1B	FP=22C; BP=97C		1.057		gal	
2 M Sulfuric Acid	7664-93-9	20	L	CR	ns		1.057		gal	
2,2'-Azobis(2-methylpropionamidine) dihydrochloride	2997-92-4	95+	S	TX	LD50 Oral Rat=500mg/kg		0.110		lbs	
2-Mercaptoethanol	60-24-2	95+	L	CL3B, TX	LD50 Oral=244 mg/kg; LD50 Dermal=150 mg/kg		0.079		gal	
2-Propanol	67-63-0	95+	L	FL1B	FP=12C; BP=82C		5.283		gal	
Isopropyl Alcohol, 70%	67-63-0	70-90	L	FL1B	FP=22C; BP=81C		4.250		gal	
AccQ Tag, Eluent A Concetrate	n/a	n/a	L	CL3B	FP>93C		0.528		gal	
Acetic Acid	64-19-7	95+	L	CR, CL2	pH=2.4 at 60.05 g/L; LD50 Oral=3,310 mg/kg; LD50 Dermal=1,060 mg/kg; FP=39C		1.347		gal	
Acetic Acid, Glacial	64-19-7	95+	L	CR, CL2	pH=2.4 at 60.05 g/L; LD50 Oral=3,310 mg/kg; LD50 Dermal=1,060 mg/kg; FP=39C		13.209		gal	
Acetic Anhydride	108-24-7	95+	L	CL2, CR	ns		0.079		gal	
Acetone	67-64-1	95+	L	FL1B	FP=1F; BP=133F		6.340		gal	
Acetonitrile	75-05-8	95+	L	FL1B	FP=6C; BP=81C, LC50 Inh Mouse 4H=6mg/L		25.625		gal	
Aminophenylboronate A6XL (20% EtOH)	n/d	n/a	L	CL2	FP=44C		5.283		gal	
Ammonium Hydroxide Solution	1336-21-6	30-50	L	CR, TX	pH=11.7; LD50-Oral: 350 mg/kg		0.555		gal	
Ammonium Hydroxide, 6.00 Normal	1336-21-6	21	L	CR	ns		0.132		gal	
Ammonium Molybdate TS	n/a	n/a	L	HT, CR	ns		0.132		gal	
Ammonium Sulfide Solution	12135-76-1	30-50	L	FL1B, CR	FP=20C, BP=40C		0.026		gal	
Benzyl Alcohol, N.F.	100-51-6	95+	L	CL3B, TX	LD50 Oral Rat=1,630mg/kg; LC50 Inh Rat 4h>4.2mg/L; FP=101C		0.793		gal	
GelCode® Blue Stain Reagent	n/a	n/a	L	CR	pH<2		0.132		gal	
Buffer, Reference Standard pH 12.45	n/a	n/a	L	CR	ns		0.660		gal	
Butane Fuel	68476-86-8	95+	G	FG, CG	LEL=-117F		0.069		CF	
Butyl Sepharose High Performance	n/a	n/a	L	CL2	FP=38-43C		5.389		gal	
Capto Adhere	64-17-5	14-19	L	CL2	FP=38-43C		0.634		gal	
Capto Adhere Impres	64-17-5	14-19	L	CL2	FP=38-43C		0.528		gal	
Capto Core 400	64-17-5	14-19	L	CL2	FP=38-43C		1.585		gal	
Capto MMC Impres	64-17-5	14-19	L	CL2	FP=38-43C		1.585		gal	
Capto Q	64-17-5	14-19	L	CL2	FP=38-43C		1.638		gal	
Carbon Dioxide (CO2)	124-38-9	95+	G	CG	ns		460.000		CF	
CiDehol 70, Isopropyl Alcohol Solution 70%	67-63-0	70-90	L	FL1B	FP=22C; BP=81C		21.896		gal	
Minncare Cold Sterilant	n/a	n/a	L	CR, OX2	pH=0.8		1.754		gal	
Compressed Air	132259-10-0	95+	G	CG	ns		460.000		CF	
Coomasisie Brilliant Blue R-250 Staining Solution	n/a	n/a	L	FL1C, CR	FP=23-60C		1.057		gal	
Copper (II) Sulfate Pentahydrate	7758-99-8	95+	S	TX, CR	LD50 Oral=300 mg/kg		7.716		lbs	
Cryocool Heat Transfer Fluid	n/a	n/a	L	CL2	FP=42C		0.500		gal	
Dimethyl Sulfoxide	67-68-5	95+	L	CL3B	FP=203F; BP=3720F		0.763		gal	
Dimethylformamide	68-12-2	95+	L	CL2	FP=57.5; BP=153C		0.013		gal	
EP Color Standard B, Brown	n/a	n/a	L	CR	ns		0.063		gal	
Eshmuno HCX	64-17-5	10-30	L	FL1C	FP=35C		0.159		gal	

Avid Biosciences Hazardous Chemical Inventory: CONTROL AREA 1

1 CHEMICAL NAME	2 CAS#	3 CONC (%)	STATE	4 CLASSIFICATION (CD/CF/CL=Combustible Dust/Fiber/Liquid; CG=Compressed Gas; CR=Corrosive; CRY=Cryogenic Liq; EX=Explosive; FL/FS/FG=Flammable Liq/Solid/Gas; HT=Highly Toxic; OP=Organic Peroxide; OX=Oxidizer, OXG=Oxidizing Gas; PY=Pyrophoric; T=Toxic; UR=Unstable Reactive; WR=Water Reactive)	5 PROPERTIES (ns=Not Specified in SDS; FP=Flash Pt; BP=Boiling Pt)	6 QUANTITIES IN USE-OPEN SYSTEM	IN USE-CLOSED SYSTEM	STORAGE	Units	7 LOCATION (Room)
Eshmuno S	64-17-5	10-30	L	FL1C	FP=35C		0.005		gal	
Ethanol for HPLC Grade, denatured	64-17-5	95+	L	FL1B	FP=14C; BP=78-80C		3.170		gal	
Ethyl Alcohol 190 Proof	64-17-5	95+	L	FL1B	FP=14C; BP=78-80C		3.000		gal	
Ethyl Alcohol, Pure	64-17-5	95+	L	FL1B	FP=14C; BP=78-80C		32.436		gal	
Ethylene Glycol	107-21-1	95+	L	CL3B	FP=232F		1.057		gal	
Ferric Chloride TS, 9% (w/v)	10025-77-1	9	L	CR	ns		0.132		gal	
Ferric Citrate	3522-50-7	95+	S	UR1	ns		1.102		lbs	
Ferrous Sulfate	7720-78-7	95+	S	TX	Oral Rat LC50=319mg/kg		2.205		lbs	
Formaldehyde Solution	50-00-0	37	L	CL2, CR, TX	FP=56C;		0.284		gal	
Formic Acid	64-18-6	95+	L	CL2, CR	LD50 Oral=1,076 mg/kg; LC50 15,000 ppm; FP=156F		1.506		gal	
Fractogel EMD DMAE (M)	n/a	n/a	L	FL1C	FP-35C		0.370		gal	
Fractogel EMD SE Hicap (M)	n/a	n/a	L	FL1C	FP-35C		0.568		gal	
Fractogel EMD SO3-	n/a	n/a	L	FL1C	FP-35C		0.264		gal	
Fractogel EMD TMAE Hicap (M)	n/a	n/a	L	FL1C	FP-35C		0.264		gal	
Gel Code Blue Stain Reagent	n/a	n/a	L	CR	pH<2		0.132		gal	
Glycerol	56-81-5	95+	L	CL3B	FP=320F; BP=182C		0.132		gal	
Guanidine Hydrochloride	50-01-1	95+	S	TX	LD50 Oral Rat=774mg/kg; LC50 Inh Rat 4H=3.2mg/L		3.307		lbs	
Hexane	110-54-3	95+	L	FL1B	FP=-10F		0.264		gal	
Hexmethylenetetramine	100-97-0	95+	S	FS	FP=250C		0.551		lbs	
HPLC Flushing Solvent	n/a	n/a	L	FL1B	FP=-20C, BP=82.4C		0.793		gal	
Hydrochloric Acid	7647-01-0	30-50	L	CR	ns		2.731		gal	
Hydrochloric Acid, 32-38%	7647-01-0	30-50	L	CR	ns		1.321		gal	
Hydrochloric Acid, 36.5-38.0%	7647-01-0	30-50	L	CR	ns		0.132		gal	
Imidazole	288-32-4	95+	S	CR, TX	ns		11.023		lbs	
Immersion Oil	n/a	95+	L	CL3B	ns		0.125		gal	
Iodoacetic Acid	64-69-7	95+	S	CR, TX	ns		0.110		lbs	
Kit Gram Stain Stabilized	n/a	n/a	L	FL1B	ns		0.264		gal	
Liquid Nitrogen (N2)	7727-37-9	n/a	L	CRY	ns		121.519		gal	
Lithium Tetraborate	12007-60-2	95+	S	CR, TX	LD50 Oral Rat=500 mg/kg		0.551		lbs	
Manganese Chloride, Tetrahydrate	13446-34-9	95+	S	CR, TX	LD50 Oral Rat=236 mg/kg		2.205		lbs	
Methanol	67-56-1	95+	L	FL1B, TX	FP=9.7C; BP=64.7C; Oral LD50<=143mg/kg human		14.001		gal	
Methotrexate	59-05-2	95+	S	TX	ns		0.001		lbs	
Methyl Red TS 2	n/a	n/a	L	FL1B	ns		0.132		gal	
MiniChrom Column ESHMUNO CP-FT	n/a	n/a	L	FL1C	FP=35C		0.001		gal	
Monoethanolamine	141-43-5	95+	L	CL3B, CR, TX	FP=170C; LD50 Oral=2,140 mg/kg; LD50 Dermal=1,000 mg/kg		0.132		gal	
N,N,N',N'-Tetramethylethylenediamine	110-18-9	95+	L	CR, FL1B	BP=120C; FP=62F		0.026		gal	
N,N-Dimethylformamide	68-12-2	95+	L	CL2	FP=57.5; BP=153C		0.132		gal	
NativePage 20X Running Buffer	6976-37-0	10-30	L	CR	ns		0.793		gal	
Ni Sepharose 6 Fast Flow	n/a	n/a	L	CL2	FP=38-43C		0.053		gal	
Nickel (II) Sulfate Hexahydrate	10101-97-0	95+	S	TX	LD50 Oral=175 mg/kg		2.205		lbs	
Nitric Acid, 2.00 Normal	7697-37-2	12	L	CR, OX1	ns		0.132		gal	
Nitric Acid, 70.0%	7697-37-2	70	L	CR, OX2, TX	ns		2.113		gal	
Nuvia cPrime Hydrophobic CEX Media	n/a	n/a	L	CL2	ns		0.528		gal	

Avid Biosciences Hazardous Chemical Inventory: CONTROL AREA 1

1 CHEMICAL NAME	2 CAS#	3 CONC (%)	STATE	4 CLASSIFICATION (CD/CF/CL=Combustible Dust/Fiber/Liquid; CG=Compressed Gas; CR=Corrosive; CRY=Cryogenic Liq; EX=Explosive; FL/FS/FG=Flammable Liq/Solid/Gas; HT=Highly Toxic; OP=Organic Peroxide; OX=Oxidizer, OXG=Oxidizing Gas; PY=Pyrophoric; T=Toxic; UR=Unstable Reactive; WR=Water Reactive)	5 PROPERTIES (ns=Not Specified in SDS; FP=Flash Pt; BP=Boiling Pt)	6 QUANTITIES IN USE-OPEN SYSTEM	IN USE-CLOSED SYSTEM	STORAGE	Units	7 LOCATION (Room)
Nuvia S Cation Exchange Media	n/a	n/a	L	CL2	ns		0.264		gal	
Octanoic Acid	124-07-2	95+	L	CL3B, CR	ns		0.317		gal	
Oxygen (O2)	7782-44-7	95+	G	CG, OXG	ns		460.000		CF	
Perchloric Acid	7601-90-3	70	L	CR, OX3, CL3B	FP=113C		0.396		gal	
Phenolphthalein TS/RS, 1% (w/v) alchol	n/a	n/a	L	FL1B	FP=15.5C; BP=77C		0.132		gal	
Phenolphthalein Solution, Alcoholic, 1.0%	n/a	n/a	L	FL1B	FP=12C; BP=83C		0.132		gal	
Phenylmethylsufonyl Fluoride	329-98-6	95+	S	TX, CR	LD50 Oral Mouse =200mg/kg		0.011		lbs	
Phosphoric Acid	7664-38-2	70-90	L	CR	LD50 Oral Rat=1250 mg/kg		1.585		gal	
Phosphoric Acid solution	7664-38-2	70-90	L	CR	ns		0.793		gal	
Piperazine, 99%, extra pure	110-85-0	95+	S	CR	ns		2.425		lbs	
Poly(ethylene glycol), poly(propylene glycol), poly(ethylene glycol)	9003-11-6	95+	L	CL3B	ns		0.132		gal	
Poly(ethyleneimine) solution	9002-98-6	95+	L	CL3B	pH=12; FP>110C; LD50 Oral Rat>500,<2000mg/kg		0.026		gal	
Poly(propylene glycol)	25322-69-4	n/a	L	CL3B	FP=229C		0.066		gal	
Polyethylene Glycol 4,000	25322-68-3	95+	S	CL3B	FP=139C		4.409		lbs	
Polyethylene Glycol 6000	25322-68-3	95+	S	CL3B	FP=139C		4.409		lbs	
Polyethylenimine, branched	9002-98-6	95+	L	CL3B	pH=12; FP>110C; LD50 Oral Rat>500,<2000mg/kg		0.026		gal	
Polysorbate 20, N.F.	9005-64-5	95+	L	CL3B	ns		0.317		gal	
Polysorbate 80	9005-65-6	95+	L	CL3B	ns		4.649		gal	
POROS 50 HS Strong Anion Exchange Resin	64-17-5	<24	L	FL1B	FP=36-49		1.585		gal	
POROS XS Strong Cation Exchange Resin	n/a	n/a	L	CL2	FP=40-50C		18.492		gal	
Potassium Hydroxide Solution	1310-58-3	95+	L	CR, TX	LD50 Oral=365 mg/kg		0.132		gal	
Potassium Hydroxide, Solid Pellets	1310-58-3	90+	S	CR, TX, WR1	LD50 Oral=365 mg/kg		3.307		lbs	
Propionic acid	79-09-4	95+	L	CL3B, CR	ns		0.660		gal	
Pyridine	110-86-1	95+	L	FL1B	FP=78F		0.132		gal	
Q Sepharose Fast Flow	n/a	n/a	L	CL2	FP=44C		0.476		gal	
Reagent Alcohol	64-17-5	95+	L	FL1B	FP=14C; BP=78-80C		9.510		gal	
Salicylaldehyde, 99%	90-02-8	95+	L	CL3A, TX	FP=77C, LD50 Rat Oral=500mg/kg		0.026		gal	
Sodium Dodecyl Sulfate 20% Solution	151-21-3	10-30	L	CR	ns		0.317		gal	
Sephacryl S-400 High Resolution	n/a	n/a	L	CL2	ns		4.755		gal	
Septihol	n/a	40-70 IPA	L	FL1B	FP=21C		1.889		gal	
Silver Nitrate	7761-88-8	95+	S	CR, OX1	ns		0.661		lbs	
Simply Blue Safe Stain	n/a	n/a	L	CL3A	FP=60-93C		1.717		gal	
Sodium Azide	26628-22-8	95+	S	HT	LD50 Oral Rat=27mg/kg		0.110		lbs	
Sodium Cyanoborohydride	25895-60-7	5-10	L	FL1B, TX	ns		2.642		gal	
Sodium Hydroxide	1310-73-2	95+	S	CR, WR1	ns		83.335		lbs	
Sodium Hydroxide 1.0N	1310-73-2	1-5	L	CR	ns		0.528		gal	
Sodium Hydroxide 10N	1310-73-2	30-50	L	CR	pH=14		5.548		gal	
Sodium Hydroxide Pellets	1310-73-2	95+	S	CR, WR1	ns		61.729		lbs	
Sodium Hydroxide, 5N	1310-73-2	10-20	L	CR	pH=14		0.528		gal	
Sodium Iodide	7681-82-5	95+	S	WR1	ns		0.441		lbs	
Sodium N-Lauroyl Sarcosine	137-16-6	95+	S	HT, CR	LC50 Inh Rat 4H=0.05-0.5mg/L		0.441		lbs	
Sodium Perchlorate	7791-07-3	95+	S	OX2	ns		3.307		lbs	

Avid Biosciences Hazardous Chemical Inventory: CONTROL AREA 1

1 CHEMICAL NAME	2 CAS#	3 CONC (%)	STATE	4 CLASSIFICATION (CD/CF/CL=Combustible Dust/Fiber/Liquid; CG=Compressed Gas; CR=Corrosive; CRY=Cryogenic Liq; EX=Explosive; FL/FS/FG=Flammable Liq/Solid/Gas; HT=Highly Toxic; OP=Organic Peroxide; OX=Oxidizer, OXG=Oxidizing Gas; PY=Pyrophoric; T=Toxic; UR=Unstable Reactive; WR=Water Reactive)	5 PROPERTIES (ns=Not Specified in SDS; FP=Flash Pt; BP=Boiling Pt)	6 QUANTITIES IN USE-OPEN SYSTEM	IN USE-CLOSED SYSTEM	STORAGE	Units	7 LOCATION (Room)
Sodium Perchlorate Monohydrate	7791-07-3	95+	S	OX2	ns		4.409		lbs	
SP Sepharose Fast Flow	n/a	n/a	L	CL2	ns		0.634		gal	
Steri-Perox 6% Sterile Spray	n/a	n/a	L	CR	ns		0.125		gal	
Sulfuric Acid	7664-93-9	95+	L	CR, WR2, TX, OX1	LC50 Oral Rat=2140 mg/kg		2.378		gal	
Sulfuric Acid Solution 4N	7664-93-9	20	L	CR	ns		7.529		gal	
Sulfuric Acid, 2.0 Normal	7664-93-9	10	L	CR	ns		0.264		gal	
Super Refined Polysorbate 80-LQ-(MH)	9005-65-6	95+	L	CL3B	ns		0.053		gal	
TCEP HCl	51805-45-9	60-100	S	CR	ns		0.007		lbs	
Tetrahydrofuran	109-99-9	95+	L	FL1B	FP=-21.2C; BP=65C		0.053		gal	
Toluene	108-88-3	95+	L	FL1B	LD50 Oral=>1,000 mg/kg; BP=110C; FP=40F		0.132		gal	
Traceable Conductivity Calibration Standard, 10 Micromhos	n/a	n/a	L	FL1C	ns		2.245		gal	
Traceable Conductivity Solution	n/a	n/a	L	FL1C	ns		2.061		gal	
Tributyl Phosphate	126-73-8	95+	L	CL3B	FP=145C		0.291		gal	
Trichloroacetic Acid	76-03-9	95+	S	CR, TX	ns		2.205		lbs	
Triethanolamine	102-71-6	95+	L	CL3B	FP=365F		0.211		gal	
Triethylamine	121-44-8	95+	L	CR, FL1B, TX	LD50 Oral=450 mg/kg; BP=88.8C; MP=-115C; FP=-15C		0.026		gal	
Trifluoroacetic Acid	76-05-1	95+	L	CR, TX	LD50 Oral Rat=200mg/kg		0.103		gal	
Tri-n-butyl Phosphate	126-73-8	95+	L	CL3B	FP=145C		0.264		gal	
Tris(2-aminoethyl)amine	4097-89-6	95+	L	CL3B, CR	ns		0.005		gal	
Triton X-100	9002-93-1	95+	L	CL3B	ns		1.849		gal	
Tropolone	533-75-5	95+	S	CR	ns		0.004		lbs	
UNOsphere Q Strong Anion Exchange Media	n/a	n/a	L	CL2	ns		0.053		gal	
UNOsphere S Cation Exchange Media	n/a	n/a	L	CL2	FP=44C		0.793		gal	
Xylenes	1330-20-7	95+	L	FL1C	ns		1.057		gal	
Xylenes, ACS reagent, 98.5% xylenes + ethylbenzene basis	1330-20-7	95+	L	FL1C	ns		0.264		gal	
Waste Flammable Liquids	n/a	n/a	L	FL1B	ns		25.000		gal	

APPENDIX

California Fire Code Table 5003.1.1: Maximum Allowable Quantity per Control Area of Hazardous Materials

TABLE 5003.1.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD[a, j, m, n, p]

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE[b]			USE-CLOSED SYSTEMS[b]			USE-OPEN SYSTEMS[b]	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible dust	NA	H-2	See Note q	NA	NA	See Note q	NA	NA	See Note q	NA
Combustible fibers[g]	Loose Baled[o]	H-3	(100) (1,000)	NA	NA	(100) (1,000)	NA	NA	(20) (200)	NA
Combustible liquid[c, i]	II IIIA IIIB	H-2 or H-3 H-2 or H-3 NA	NA	120[d,e] 330[d, e] 13,200[e, f]	NA	NA	120[d] 330[d] 13,200[f]	NA	NA	30[d] 80[d] 3,300[f]
Consumer fireworks	1.4G	H-3	125[e, l]	NA	NA	NA	NA	NA	NA	NA
Cryogenic Flammable	NA	H-2	NA	45[d]	NA	NA	45[d]	NA	NA	10[d]
Cryogenic Inert	NA	NA	NA	NA	NL	NA	NA	NL	NA	NA
Cryogenic Oxidizing	NA	H-3	NA	45[d]	NA	NA	45[d]	NA	NA	10[d]
Explosives	Division 1.1 Division 1.2 Division 1.3 Division 1.4 Division 1.4G Division 1.5 Division 1.6	H-1 H-1 H-1 or H-2 H-3 H-3 H-1 H-1	1[e, g] 1[e, g] *10*[e, g] 50[e, g] 125[d, e, l] 1[e, g] 1[e, g]	(1)[e, g] (1)[e, g] (*10*)[e, g] (50)[e, g] NA (1)[e,g] NA	NA	0.25[g] 0.25[g] 1[g] 50[g] NA 0.25[g] NA	(0.25)[g] (0.25)[g] (1)[g] (50)[g] NA (0.25)[g] NA	NA	0.25[g] 0.25[g] 1[g] NA NA 0.25[g] NA	(0.25)[g] (0.25)[g] (1)[g] NA NA (0.25)[g] NA
Flammable gas	Gaseous Liquefied	H-2	NA	NA (150)[d, e]	1,000[d, e] NA	NA	NA (150)[d, e]	1,000[d, e] NA	NA	NA
Flammable liquid[c]	IA IB and IC	H-2 or H-3	NA	30[d, e] 120[d, e]	NA	NA	30[d] 120[d]	NA	NA	10[d] 30[d]
Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120[d, e, h]	NA	NA	120[d, h]	NA	NA	30[d, h]
Flammable solid	NA	H-3	125[d, e]	NA	NA	125[d]	NA	NA	25[d]	NA

(continued)

TABLE 5003.1.1(1)—continued
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD[a, j, m, n, p]

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE[b]			USE-CLOSED SYSTEMS[b]			USE-OPEN SYSTEMS[b]	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Inert Gas	Gaseous Liquefied	NA NA	NA NA	NA NA	NL NL	NA NA	NA NA	NL NL	NA NA	NA NA
Organic peroxide	UD I II III IV V	H-1 H-2 H-3 H-3 NA NA	1[e, g] 5[d, e] 50[d, e] 125[d, e] NL NL	(1)[e, g] (5)[d, e] (50)[d, e] (125)[d, e] NL NL	NA	0.25[g] 1[d] 50[d] 125[d] NL NL	(0.25)[g] (1)[d] (50)[d] (125)[d] NL NL	NA	0.25[g] 1[d] 10[d] 25[d] NL NL	(0.25)[g] (1)[d] (10)[d] (25)[d] NL NL
Oxidizer	4 3[k] 2 1	H-1 H-2 or H-3 H-3 NA	1[g] 10[d, e] 250[d, e] 4,000[e, f]	(1)[e, g] (10)[d, e] (250)[d, e] (4,000)[e, f]	NA	0.25[g] 2[d] 250[d] 4,000[f]	(0.25)[g] (2)[d] (250)[d] (4,000)[f]	NA	0.25[g] 2[d] 50[d] 1,000[f]	(0.25)[g] (2)[d] (50)[d] (1,000)[f]
Oxidizing gas	Gaseous Liquefied	H-3	NA	NA (150)[d, e]	1,500[d, e] NA	NA	NA (150)[d, e]	1,500[d, e] NA	NA	NA
Pyrophoric	NA	H-2	4[e, g]	(4)[e, g]	50[e, g]	1[g]	(1)[g]	10[e, g]	0	0
Unstable (reactive)	4 3 2 1	H-1 H-1 or H-2 H-3 NA	1[e, g] 5[d, e] 50[d, e] NL	(1)[e, g] (5)[d, e] (50)[d, e] NL	10[e, g] 50[d, e] 750[d, e] NL	0.25[g] 1[d] 50[d] NL	(0.25)[g] (1)[d] (50)[d] NL	2[e, g] 10[d, e] 750[d, e] NL	0.25[g] 1[d] 10[d] NL	(0.25)[g] (1)[d] (10)[d] NL
Water reactive	3 2 1	H-2 H-3 NA	5[d, e] 50[d, e] NL	(5)[d, e] (50)[d, e] NL	NA	5[d] 50[d] NL	(5)[d] (50)[d] NL	NA	1[d] 10[d] NL	(1)[d] (10)[d] NL

For SI: 1 cubic foot = 0.02832 m^3, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

NA = Not Applicable, NL = Not Limited, UD = Unclassified Detonable.

a. For use of control areas, see Section 5003.8.3.

b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

c. The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited providing the liquids are packaged in individual containers not exceeding 1.3 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuff or consumer products and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

d. *[SFM] In other than Group L occupancies,* maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied accumulatively.

(continued)

TABLE 5003.1.1(1)—continued
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD[a, j, m, n, p]

e. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets, day boxes, gas cabinets, gas rooms, exhausted enclosures or in listed safety cans in accordance with Section 5003.9.10. Where Note d also applies, the increase for both notes shall be applied accumulatively.

f. Quantities shall not be limited in a building equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

g. Allowed only in buildings equipped throughout with an approved automatic sprinkler system.

h. Containing not more than the maximum allowable quantity per control area of Class IA, Class IB or Class IC flammable liquids.

i. The maximum allowable quantity shall not apply to fuel oil storage complying with Section 603.3.2.

j. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.

k. A maximum quantity of 200 pounds of solid or 20 gallons of liquid Class 3 oxidizers is allowed where such materials are necessary for maintenance purposes, operation or sanitation of equipment where the storage containers and the manner of storage are approved.

l. Net weight of pyrotechnic composition of the fireworks. Where the net weight of the pyrotechnic composition of the fireworks is not known, 25 percent of the gross weight of the fireworks including packaging shall be used.

m. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 5003.1.2.

n. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 5003.11, see Table 5003.11.1.

o. Densely-packed baled cotton that complies with the packing requirements of ISO 8115 shall not be included in this material class.

p. The following shall not be included in determining the maximum allowable quantities:

1. Liquid or gaseous fuel in fuel tanks on vehicles.
2. Liquid or gaseous fuel in fuel tanks on motorized equipment operated in accordance with this code.
3. Gaseous fuels in piping systems and fixed appliances regulated by the *California Mechanical Code*.
4. Liquid fuels in piping systems and fixed appliances, regulated by the *California Mechanical Code*.
5. Alcohol-based hand rubs classified as Class I or II liquids in dispensers that are installed in accordance with Sections 5705.5 and 5705.5.1. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the construction documents.

q. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 104.7.2.

TABLE 5003.1.1(2)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD[a, c, f, h, i]

MATERIAL	STORAGE[b]			USE-CLOSED SYSTEMS[b]			USE-OPEN SYSTEMS[b]	
	Solid pounds[d, e]	Liquid gallons (pounds)[d, e]	Gas cubic feet at NTP (pounds)[d]	Solid pounds[d]	Liquid gallons (pounds)[d]	Gas cubic feet at NTP (pounds)[d]	Solid pounds[d]	Liquid gallons (pounds)[d]
Corrosives	5,000	500	Gaseous 810[e] Liquefied (150)	5,000	500	Gaseous 810[e] Liquefied (150)	1,000	100
Highly Toxics	10	(10)	Gaseous 20[g] Liquefied (4)[g]	10	(10)	Gaseous 20[g] Liquified (4)[g]	3	(3)
Toxics	500	(500)	Gaseous 810[e] Liquefied (150)[e]	500	(500)	Gaseous 810[e] Liquefied (150)[e]	125	(125)

For SI: 1 cubic foot = 0.02832 m^3, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

a. For use of control areas, see Section 5003.8.3.

b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

c. In retail and wholesale sales occupancies, the quantities of medicines, foodstuff or consumer products and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

d. *[SFM] In other than Group L occupancies,* maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied accumulatively.

e. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets, gas cabinets or exhausted enclosures. Where Note d also applies, the increase for both notes shall be applied accumulatively.

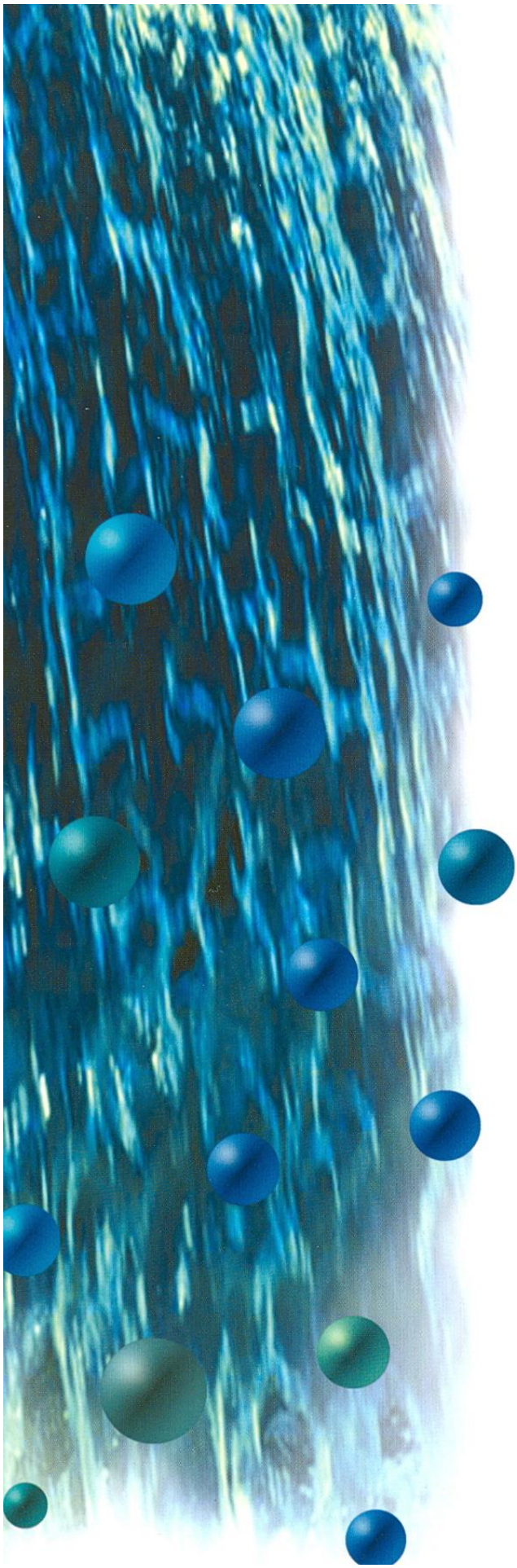
f. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 5003.11, see Table 5003.11.1.

g. Allowed only where stored in approved exhausted gas cabinets or exhausted enclosures.

h. Quantities in parentheses indicate quantity units in parentheses at the head of each column.

i. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 5003.1.2.

Attachment 2



pH Plus
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1.0 Warnings

PH PROBES ARE SUBJECT TO DAMAGE FROM FREEZING TEMPERATURES. PROBES MUST BE REMOVED FROM SYSTEM IF SYSTEM WILL BE SUBJECT TO FREEZING TEMPERATURES PRIOR TO INSTALLATION.

REAGENT CHEMICALS MUST BE KEPT ABOVE 50ºF FOR PROPER OPERATION.

CHEMICALS MAY BE HAZARDOUS TO YOUR HEALTH. OSHA STANDARDS REQUIRE YOU TO REFER TO AND UNDERSTAND THE MATERIAL SAFETY DATA SHEET (MSDS) FOR THE CHEMICALS THAT MAY BE USED IN THE SYSTEM PRIOR TO HANDLING THOSE CHEMICALS. THE SYSTEM WAS NOT EXPOSED TO CHEMICALS PRIOR TO SHIPMENT.

A QUALIFIED ELECTRICIAN MUST INSTALL POWER WIRING AND A DEDICATED GROUND.

RISK OF ELECTRIC SHOCK. SERVICE PANELS ARE TO BE OPENED ONLY BY QUALIFIED ELECTRICIAN PERSONNEL. REFER SERVICING TO THESE QUALIFIED AND TRAINED SERVICE PERSONNEL.

1.1 System Introduction

Burt Process Equipment's pH Plus family of advanced pre-engineered pH adjustment modules represent the industry's best and most complete line of pH monitoring and controlling equipment. The pH Plus Series is the result of 30 years of experience and engineering development in the field of industrial wastewater treatment.

The PHX module is designed for use as a continuous flow pH adjustment system or a batch treatment system when run manually.

In the continuous flow mode, the influent is fed through a down pipe to prevent short-circuiting and thus achieving adequate retention time for equalization reaction. The tank volume is sized for proper retention time based on flow rate and change in pH. A pH probe and controller provide proportional signals to metering pumps to dispense the correct amount of reagent chemicals. An agitator provides the required amount of pumping action for ample tank turnover, resulting in complete blending. The injection points, inlet and outlet fittings, and agitator are strategically located for reliable, accurate performance.

Effluent monitoring is available as an option and includes a second pH probe in an effluent monitoring cross or u-trap, along with a digital pH transmitter, magnetic flow meter and a 31–day strip recorder.
This system also comes with an influent duplex lift station. The transfer pumps for this station are located on the PHX skid. These pumps draw water from the transfer station and pump into/through the PHX unit.

1.2 Theory of Operation

When supplied as a continuous flow through system, the PHX Module will automatically adjust incoming wastewater to the desired pH range, usually 6.5 – 8.5 pH, with the proportional addition of a caustic *(50% sodium hydroxide)* or acid *(50% sulfuric)* reagent. The PHX system is factory assembled with internal wiring and plumbing and requires limited field connections. (Refer to the following **START UP PROCEDURE** for details.)

Below are the retention times and flows for the respective units, based upon a continuous flow operation:

Model	Normal Flow (GPM)	Retention Time (Min)	Elevated Flow (GPM)	Retention Time (Min)
PHX-100	7	15	10	10
PHX-200	13	15	20	10
PHX-300	20	15	30	10
PHX-400	27	15	40	10
PHX-500	33	15	50	10

A single pH sensor is utilized in the tank to detect the pH level of the wastewater. The sensor is an immersible type, and is provided with a BPE *Quick Twist* housing for easy removal for calibration and cleaning. A microprocessor based pH controller or transmitter, (depending upon options) signals the appropriate metering pump to inject reagent as required to keep the pH within the preset range. The pump stroke is accelerated as the pH approaches the extreme ends of the preset scale, and is slowed as the pH approaches neutral.

The tank is continuously agitated with a mixer, providing a tank turnover rate of 2-3 times per minute. The mixer operates continuously when the appropriate switch is in the “ON” position. An access/inspection port is provided for clean-out and proper agitation verification.

The system user must supply reagents. Alarms are provided to indicate to the operator when the reagent tanks reach low level. In addition, each reagent compartment includes a visual float indicator for high-level indication when filling the individual reagent tanks.

Should the pH in the tank exceed acceptable limits, an audible alarm shall sound and an alarm lamp at the panel will be activated. The set points for these alarm conditions *(both high and low)* are field adjustable through the pH controller/transmitter, depending upon your individual requirements.

The PHX Module can also be run in a batch mode. This set up is suitable where flow rates are relatively low and/or the influent requires a longer retention time than standard due to large variances in the wastewater pH. In this case, the discharge can be controlled via an optional automated valve and controls to ensure the batch is within specifications before dumping. Also, an optional discharge pump can be provided where gravity drain from the effluent is not possible.

Optional effluent pH monitoring packages are available for both continuous and batch mode PHX Modules. These generally include an effluent 'monitoring cross' fitting or u-trap, along with a pH sensor, pH transmitter and a strip or circular chart recorder. In addition to effluent pH monitoring, optional flow monitoring packages are available, utilizing in-line paddlewheel or magnetic sensing technologies, or non-contact ultrasonic sensors in conjunction with an open channel flume.

The provided PHX is supplied with an influent transfer station as well, and two transfer pumps to transfer wastewater from the station to the PHX. The two transfer pumps are located on the PHX skid.

Influent wastewater gradually fills up in the transfer station, until the first pump on point is reached. At this point one pump will begin sucking water from the transfer station bottom and transferring through the PHX. If the water level in the station continues to rise, eventually the second (lag) pump will energize to assist with pumping down the station. The pumps operate in a lead/lag arrangement to provide equal wear on the pumps.

If the transfer station water level rises too high, a high level alarm will enable. When the water level is pumped down to the low level point, both pumps will be disabled. The suctions on both pumps have a strainer and check valve. There is also a union near the top of the transfer station on the suction lines; this union allows for easy removal of the suction plumbing if necessary.

1.3 Installation and Initial Start-up Procedure

THE OPERATOR SHOULD READ THIS ENTIRE MANUAL BEFORE ATTEMPTING INSTALLATION AND SYSTEM START-UP.

The continuous flow through system is designed for automatic operation, with a minimum amount of operator interaction. Regular maintenance is required, and should be performed as outlined elsewhere in this manual.

The following steps are required to bring the neutralization module on-line:

1. Locate the PHX Module on a smooth, level surface that provides full support to the bottom of the unit. Install the transfer station in the pit, also ensuring the installation surface is appropriate.

2. Plumb the wastewater supply line to the transfer station inlet (inlet to be installed by customer). Then, plumb the two station discharge flanges to the pump suction flanges located on the PHX skid.

3. The effluent Utrap may have shipped loose; if this is the case attach the Utrap inlet to the PHX outlet flange.

4. Plumb the Utrap outlet, which is marked **OUTLET**, to drain. Use a pipe size at least as large as the effluent fitting. Care must be taken to prevent the possibility of downstream flow restriction that could cause the PHX to overflow. Refer to specific instructions for your system for details.

5. Check all tubing/piping connections to insure that proper seals are made, in order to prevent operator injury or system leaks. This applies to the inlet and outlet plumbing, as well as the metering pump tubing connections.

6. Make sure that the pH electrode/preamplifier assemblies are properly connected. A loose electrode can allow solution to contact the preamp electrical connections and damage the assembly. When it is time to start the unit, remove the rubber cap on the end of each pH electrode. This is installed to protect the electrode from drying out.

7. Make sure that the metering pumps, level controls, pumps, mixer and all electrical items (on PHX and transfer station) are plugged (hardwired) into the control panel outlets (terminal strip). Verify that the control panel power switch is in the off position, and plug (wire) the panel power to the proper supply power. A suitably sized, fused disconnect should be

provided for the module. Refer to the appropriate electrical schematic for the full load current of your unit.

8. The transfer station and neutralization tank should be filled with water before introducing the wastewater flow so that the mixer operation can be tested, as well as the metering pumps and the pH sensor(s).

9. The pH sensor(s) will require calibration before they are fully operational. See the pH transmitter and controller manuals in Section 2 for details. (Be sure to remove the electrode protective storage cap). The desired pH set points and alarm points should also be set at this time. (Section 2)

10. After all connections to the tanks are made, and the tanks are full of liquid, the power may be turned on at the panel. Set the panel switches for the mixer and the acid and caustic metering pumps to the “ON” position. Looking down the mixer shaft, rotation should be clockwise in motion. The metering pumps may require priming for proper operation. See the manual in Section 2 for complete instructions. Pumping stroke size and frequency adjustments should also be made as outlined by its manual. 50% settings for both should be set initially. Metering pumps should be set in "external" mode for automatic operation. This is done by opening the clear-hinged cover on the face of each metering pump, and turning the appropriate knob.

1.4 Routine Maintenance

BE SURE TO DISCONNECT ALL ELECTRICAL CONNECTIONS AND DEPRESSURIZE CHEMICAL FEED LINES BEFORE ATTEMPTING ANY SERVICE OR REPAIR ON THE NEUTRALIZATION SYSTEM. ALWAYS USE PROPER PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING ON OR AROUND THE NEUTRALIZATION SYSTEM.

Routine Maintenance should include:

1. Replenishment of chemical reagents as required (remove the small yellow threaded cap adjacent to each metering pump to allow the 'full indicator' (float) to operate).

2. Cleaning pH sensors and level controls to remove any build-up and restore response time. This can be accomplished with clean water and/or methyl alcohol, and should be performed at least once per month. See pH electrode instruction sheet.

3. Calibration of pH sensors once per month to check condition of electrode and compensate for its degradation. **This maintenance procedure must be performed at least once per month.** Refer to the controller/transmitter manual for complete instructions.

4. Inspection of metering pumps' tubing/piping connections for leaks.

5. Visual inspection through the access door to check operating level and solution mixing action. Poor agitation could indicate faulty mixer operation or the presence of foreign matter in the tank. An abnormally high operating level could indicate an increased inlet flow or an obstructed outlet line.

6. Replacing chart paper on a timely basis (for optional pH and flow monitoring packages only).

REFER TO EACH COMPONENT'S SPECIFIC OPERATION AND MAINTENANCE MANUAL FOR COMPLETE MAINTENANCE AND CARE INSTRUCTIONS.

1.5 Recommended Spare Parts

COMPONENT	DESCRIPTION	PART NO.	QTY
Pulsatron LPH7MA-WTC3-BPXXX Metering Pump	KOP Kit	K7WTC3	1
Hayward TC10100ST Check Valve	Replace Entire Unit	TC10100ST	1
Honeywell 24001661-214 Chart Paper	Replace Entire Unit	24001661-214	1
Bussman LP-CC-2 Fuse	Replace Entire Unit	LP-CC-2	1
Bussman LP-CC-20 Fuse	Replace Entire Unit	LP-CC-20	1
Bussman LP-CC-5 Fuse	Replace Entire Unit	LP-CC-5	1

THE ABOVE PARTS SHOULD BE KEPT ON HAND AT ALL TIMES TO MINIMIZE DOWNTIME AND AVOID DIFFICULTIES. REFER TO EACH COMPONENTS SPECIFIC O & M MANUAL FOR INSTALLATION INSTRUCTIONS AND ADDITIONAL SPARE PARTS.

1.6 Troubleshooting Guide

PROBLEM	SYMPTOM	REMEDY
pH Not being adjusted	Reagent supply depleted	Replenish reagent
	Treatment probe not reading	Clean or replace probe.
	Poor agitation	Check mixer prop for obstructions
	Improper control set points	Refer to controller manual and adjust set points.
Chemical Reagent not being pumped	Metering pump requires priming	Prime pump per O & M Manual
	Tubing kinked or broken	Inspect/Replace damaged tubing
	Clogged injection check valve/suction strainer	Check suction/discharge valve for blockage/damage. Clean/replace as necessary.
Mixer not rotating	Thermal overload tripped	Reset overload relay in control panel – check for prop/foil blockage
	Blown fuse	Replace fuse in control panel
Water level too high	Effluent plumbing obstructed	Inspect/clean blockage of effluent plumbing
	Influent exceeded maximum flow rate	Decrease influent to within acceptable range
pH probe responding slowly	Probe dirty or worn out	Clean/replace electrode
Treatment overshoots pH set points	Reagent pumped too quickly	Turn down pump speed
		Turn down pump stroke length
		Turn down controller maximum stroke rate

1.7 BPE Product Warranty

MINIMUM ORDER:
The minimum order acceptable is $25.00 net billing.

PRICES:
Prices are based on standard domestic packaging and do not include special export packaging or other requirements. **ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.**

CREDIT INFORMATION:
Open account billing is extended to firms with established credit ratings. Please request a credit application. Any account not approved by our Credit Department may order C.O.D. or by credit card.

TERMS:
Net (1) year.

DELIVERY:
We are staffed to handle most orders promptly from our large inventory. **ALL SHIPMENTS WILL BE F.O.B. OUR PLANT UNLESS OTHERWISE SPECIFIED.**

RETURNS AND CLAIMS:
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN TEN (10) DAYS AFTER RECEIPT OF GOODS. Claims for goods damaged or lost in transit should be filed with the carrier. **RETURNS WILL NOT BE ACCEPTED WITHOUT OUR WRITTEN PERMISSION.**

TECHNICAL INFORMATION:
Information on corrosion, pressures, and temperatures may be used as a guide and as a basis for recommendations and should not be interpreted as a guarantee. To be certain of results, materials should be tested under actual service conditions.

LIMITED PRODUCT WARRANTY

All **products not manufactured by Burt Process Equipment** carry the original manufacturer's warranty. Copies are available on request. All **products manufactured by Burt Process Equipment will be free of defects** in material and workmanship for a period of (1) year from date of shipment from Burt Process Equipment. If found to be defective by us, we will **repair or replace the nonconforming parts or goods at our option**, or return the purchase price, at our option. Notice of a defective product must be given to Burt Process Equipment in writing immediately upon the discovery of such defect and include a copy showing proof of purchase. Burt Process Equipment will not be liable for special or consequential damages in any claim, suit or proceedings arising under this warranty, nor will Burt Process Equipment accept any liability for claims for labor, loss of profit, repairs or other expenses incidental to replacement. **The product warranty expressed above is our only warranty** and may not be verbally changed or modified by any representative of Burt Process Equipment. The offer to repair or replace nonconforming goods within warranty does not cover defects caused by shipping damages, damages caused by improper use or installation, or by the buyers attempt to use products beyond their mechanical, thermal or electrical capacity

All freight costs incurred in shipping parts to or from Burt Process Equipment or to the manufacture if necessary, are at the expense of the customer. .

Attachment 3

ORANGE COUNTY FIRE AUTHORITY

Hazardous Materials Inventory Statement

- Please type or print legibly in black ink.
- This form may be reproduced or downloaded from our website at www.ocfa.org.
- For line-by-line instructions, refer to the green colored pages.
- For assistance, contact the Disclosure Office at (714) 573-6250.

State law requires your business to complete all sections of the Emergency Response Procedure listed below. Those items left blank or complete with an "N/A" are not acceptable and in violation of Health & Safety Code (HSC) § 25505.

Do not submit business policies or procedure manual in lieu of completing these sections.

TRAINING

EMPLOYEE TRAINING PROGRAM – By law, all employees shall be trained in the methods for safe handling of hazardous materials, and in safety procedures in the event of a release or threatened release of hazardous materials.

Describe the training new employees receive regarding hazardous materials safety

New employees receive training on Hazard Communication, Chemical Hygiene, Hazardous Waste Management and Spill response. Training include proper handling, storage and labeling of containers, identification of hazardous materials, Safety Data Sheets, general chemical safety, use of PPE, use of emergency equipment, hazardous waste management and disposal, potential health hazards/effects, exposure monitoring, spill response and emergency notification.

Describe the training employees receive on an annual basis regarding hazardous materials safety

Employees will receive annual training on proper handling, storage and labeling of containers, identification of hazardous materials, Safety Data Sheets, general chemical safety, use of PPE, use of emergency equipment, hazardous waste management and disposal, spill response and emergency notification.

Describe when an employee would receive refresher training in hazardous materials safety

Training will be provided if there are changes in the work practices, procedures or inadequacies in the employee's knowledge are apparent. Refresher will also be provided if employee is involved in any incidents related to handling of hazardous materials.

MITIGATION

How does your business prevent spills from occurring?

Some processes in the labs are conducted in a hood or lab bench area that reduces the possibility of accidentally knocking over a container.

Unused agents are placed in their appropriate storage area or storage cabinets and work areas are kept clean of equipment and clutter.

All containers are kept sealed and closed at all times unless adding or accumulating.

All precautions are taken when working with or transporting hazardous materials.

Employees are trained in spill prevention measures that include: Identification, containment, deny entry, timely notification, clean up and proper disposal.

What methods does your business have to prevent a spill from spreading?

Containment with spill socks and absorbents, deny entry, notification and immediate clean-up of spilled material. Spill kits are available in all areas where hazardous materials are handled and stored.

ABATEMENT

List the types of releases that can occur at your business and how each type of release will be stopped.
Example: Processing pipe breaks – release is stopped with pipe clamps designed for this purpose.

Spill of hazardous materials will be stopped using absorbent socks from the spill kit for containment. Absorbent pads will be used For clean-up. Routine inspections are conducted in Manufacturing areas, laboratories and Warehouses. Chemicals are stored in appropriate designated areas including storage cabinets. All employees who handle and work with hazardous materials have been trained on chemical safety and spill response. Secondary containment is used for storage where appropriate. Spill kits are available throughout the facility.

How do you handle the clean-up and disposal of released materials at your facility?

Small Spills
If safe, trained personnel will clean up spill using absorbent material from the spill kit. Personnel will wear PPE as required. Waste materials for spill cleanup will be properly bagged and labeled as "spill debris". Bag will be properly stored in the Waste Storage Area prior to proper disposal by a licensed waste contractor.

Large Spill
All large-scale chemical spills will be reported to the spill response team. If safe and appropriate, spill team will attempt to clean up spills. If not due to volume or other hazards posed, spill team will contact the outside emergency contractor to coordinate spill clean-up. For emergency or spills that are life threatening or pose immediate hazard to the environment, company will contact 911.

What aspects of an incident (release) are beyond your ability and need to be handled by others?
Example: Disposal of released materials – call ABC Waste Disposal Company @ (000) 123-4567.

If spill can't be cleaned up internally due to volume or other hazards posed, spill team will contact the outside emergency contractor to coordinate spill clean-up. For emergency or spills that are life threatening or pose immediate hazard to the environment, company will contact 911.

Emergency spill contractor, ACTenviro (866) 333-9222

For reportable release, site will contact local CUPA and National Response Center.

EVACUATION

How will you immediately notify and evacuate your facility? If the method of notification requires electrical power, how will it be operated during a power failure?

All employees will be notified of an emergency using the company's paging system and AlertMedia mass notification system (cell/e-mails). Employees will exit the facility using the nearest emergency exit. Airway building has a back-up emergency generator in case of power outage. Other small back-up generators are also available in the Facility Shop.

Do you have a pre-arranged employee staging area? If yes, where do employees meet after being evacuated? Who is responsible to account for the evacuated employees?

Employees will meet in designated assembly area for the building they evacuated from. Area supervisor/team leader is responsible for accounting for the evacuated employees.

If you do not have an employee staging area, how will you account for the employees, to make sure that everyone has been evacuated?

N/A

ADDITIONAL INFORMATION

Your business is required by State Law to keep a copy of this Business Emergency Plan, including the chemical inventory and Site Map. Describe where copies of this plan as well as other records required by this plan (i.e. employee training, release reports, safety drills, maintenance records) will be located at your business.

EHS Manager's office for Business Emergency Plan, chemical inventory and site map.
Facility Manager's office for maintenance related records.

Identify the local emergency medical facility that will be used by your business in the event of an accident or injury caused by a release or threatened release of hazardous materials:

Hospital/Clinic Coastal Family Medicine, CA			
Address 1190 Baker St. Ste. 100	City Costa Mesa	Zip Code 92626	Phone Number (714) 668-2500
Hospital/Clinic Kaiser On-The-Job			
Address 3401 S. Harbor Blvd.	City Santa Ana	Zip Code 92704	Phone Number (714) 644-6450

Does your business have a private on-site emergency response team? ☐ Yes ☒ No
If yes, describe what policies and procedures your business will follow to notify your on-site emergency response team in the event of an emergency: