

# EMISSION SUMMARY AND DISPERSION MODELLING REPORT FOR NALCO CANADA BURLINGTON FACILITY

## Emission Summary Table – Nalco Canada Burlington

Contaminant	CAS	Total Emission Rate (g/s)	Averaging Period (hours)	Applicable POI Criteria ( $\mu\text{g}/\text{m}^3$ )	Limiting Effect	Regulation Schedule <sup>1</sup>	Category <sup>2</sup>	Model Used	Total POI Concentration <sup>3</sup> ( $\mu\text{g}/\text{m}^3$ )	% of Criteria
NOx	10102-44-0	2.56E-01	24	200	Health	Standard	B1	AERMOD	59.1	30%
		2.56E-01	1	400	Health	Standard	B1		167.4	42%
PM	N/A	3.13E-02	24	120	Visibility	Standard	B1	Tier 1 assessment	62.75	52%
Iron oxide	1309-37-1	4.63E-05	24	25	Health & Soiling	Standard	B1	Tier 1 assessment	0.19	<1%
Propylene Glycol	57-55-6	3.5E-03	24	120	Particulate	Guideline	B1	Tier 1 assessment	6.23	5%
Ethanol	64-17-5	1.1E-03	1	19,000	Odour	Guideline	B1	Tier 1 assessment	7.18	<1%
Acetic Acid	64-19-7	1.2E-04	24	2,500	Odour	Guideline	B1	Tier 1 assessment	0.30	<1%
Methanol	67-56-1	2.1E-04	24	4,000	Health	Standard	B1	Tier 1 assessment	0.55	<1%
Isopropanol	67-63-0	5.4E-02	24	7,300	Health	Standard	B1	Tier 1 assessment	94.56	1%
Acetone	67-64-1	4.4E-04	24	11,880	Health	Standard	B1	Tier 1 assessment	1.15	<1%
Acetonitrile	75-05-8	2.6E-03	24	70	Health	Standard	B1	Tier 1 assessment	6.80	10%
Acrylamide	79-06-1	3.2E-03	24	15	Health	Standard	B1	Tier 1 assessment	4.45	30%
Acrylic Acid	79-10-7	9.2E-04	24	12	Health	SL-PA	B2	Tier 1 assessment	1.29	11%
Naphthalene	91-20-3	1.6E-03	24	22.5	Health Odour	Guideline	B1	Tier 1 assessment	2.81	12%
	91-20-3	9.8E-03	10-min	50	Odour	Guideline	B1	AERMOD	15.86	32%
Benzotriazole	95-14-7	2.2E-03	24	6	Health	SL-JSL	B2	Tier 1 assessment	3.98	66%
1,2,4-Trimethylbenzene	95-63-6	7.5E-03	24	220	Health	Standard	B1	Tier 1 assessment	13.27	6%
Diethylethanolamine	100-37-8	3.5E-02	24	115	Health	SL-JSL	B2	Tier 1 assessment	60.90	53%
Ethylbenzene	100-41-4	4.1E-06	10-min	1,900	Odour	Guideline	B1	Tier 1 assessment	0.03	<1%
Acrylonitrile	107-13-1	6.4E-05	24	0.6	Health	Standard	B1	Tier 1 assessment	0.12	19%
Ethylene Glycol	107-21-1	1.1E-03	24	12,700	Health	Guideline	B1	Tier 1 assessment	2.01	<1%
Glyoxal	107-22-2	3.0E-07	24	2	Health	SL-MD	B2	Tier 1 assessment	0.00	<1%
1-Methoxy-2-Propanol	107-98-2	1.3E+00	10-min	121,000	Odour	Guideline	B1	Tier 1 assessment	8,935	7%
Cyclohexylamine	108-91-8	9.7E-03	24	48	Health	SL-PA	B2	Tier 1 assessment	17.14	36%
Morpholine (NAM;SYN)	110-91-8	1.6E-01	24	200	Health	SL-JSL	B2	AERMOD	58.20	29%

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Diethanolamine	111-42-2	0.0E+00	24	15	Health	SL-JSL	B2	Tier 1 assessment	0.00	<1%
2-Butoxyethanol	111-76-2	4.5E-02	24	2,400	Health	Guideline	B1	Tier 1 assessment	78.99	3%
	111-76-2	2.7E-01	10-min	500	Odour	Guideline	B1	AERMOD	478.17	96%
1-Octanol	111-87-5	7.4E-02	24	135	Health	SL-JSL	B2	Tier 1 assessment	129.5	96%
Dibutylamine	111-92-2	1.1E-04	1	2,645	Health	Guideline	B1	Tier 1 assessment	0.72	<1%
1-Decanol	112-30-1	4.2E-02	24	75	Health	SL-JSL	B2	Tier 1 assessment	73.42	98%
Dimethylamine	124-40-3	0.0E+00	1	1,840	Health & Odour	Guideline	B1	Tier 1 assessment	0.00	<1%
Monoethanolamine	141-43-5	6.8E-03	24	35	Health	SL-JSL	B2	Tier 1 assessment	12.30	35%
Sorbitan Monooleate	1338-43-8	2.7E-04	24	50	Health	SL-JSL	B2	Tier 1 assessment	0.43	<1%
Dimethylaminoethyl Acrylate	2439-35-2	1.7E-04	24	0.2	N/A	Maximum GLC	N/A	AERMOD	0.04	21%
Diethyl-Hydroxyl-Amine	3710-84-7	6.4E-02	24	87	Health	SL-JSL	B2	AERMOD	23.10	27%
Methoxypropylamine	5332-73-0	1.9E-02	24	99	Health	SL-PA	B2	Tier 1 assessment	32.89	33%
Limonene	5989-27-5	5.5E-02	24	550	Health	SL-JSL	B2	Tier 1 assessment	95.4	17%
Hydrochloric acid	7647-01-0	3.0E-02	24	20	Health	Standard	B1	AERMOD	13.30	67%
Phosphoric Acid	7664-38-2	1.5E-02	24	7	Health	Standard	B1	AERMOD	3.64	52%
Ammonium Hydroxide	7664-41-7	6.1E-05	24	100	Health	Standard	B1	Tier 1 assessment	0.16	<1%
Sulfuric Acid	7664-93-9	4.3E-06	24	5	Health	Standard	B1	Tier 1 assessment	0.01	<1%
Nitric Acid	7697-37-2	1.0E-04	24	35	Corrosion	Standard	B1	Tier 1 assessment	0.27	<1%
Hydrogen Peroxide	7722-84-1	0.0E+00	24	30	Health	Guideline	B1	Tier 1 assessment	0.00	<1%
Citric Acid	77-92-9	1.7E-05	24	120	Particulate	Guideline	B1	Tier 1 assessment	0.03	<1%
	77-92-9	1.0E-04	1	300	Health	Guideline	B1	Tier 1 assessment	0.44	<1%
Isobutanol	78-83-1	0.0E+00	10-min	2,340	Odour	Guideline	B1	Tier 1 assessment	0	<1%
Ethoxylated Alcohol	78330-21-9	9.0E-04	24	40	Health	SL-JSL	B2	Tier 1 assessment	1.59	4%
White Mineral Oil	8042-47-5	3.7E-02	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	69.65	58%
Ethoxylated Sorbitan Monostearate	9005-67-8	5.8E-03	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	8.12	7%
Ethoxylated Nonylphenol	9016-45-9	1.3E-03	24	90	Health	SL-JSL	B2	Tier 1 assessment	2.29	3%
Hydroxyphosphonoacetic Acid	23783-26-8	1.6E-03	24	3	Health	SL-PA	B2	Tier 1 assessment	2.82	94%
Polypropylene Glycol	25322-69-4	4.4E-04	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	0.82	<1%
Dodecylbenzenesulphonic Acid	27176-87-0	6.7E-06	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	0.01	<1%

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2-Phosphono-1,2,4-Butanetricarboxylic Ac	37971-36-1	6.3E-02	24	112	Health	SL-PA	B2	Tier 1 assessment	111.09	99%
Tall Oil Fatty Acid	61790-12-3	1.9E-04	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	0.36	<1%
Ethoxylated N-Tallow Alkyl-1,3-Propylenediamine	61790-85-0	4.0E-02	24	70	Health	SL-PA	B2	Tier 1 assessment	68.94	98%
Ethoxylated Tall Oil	61791-00-2	1.0E-02	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	17.63	15%
Straight Run Middle Distillate	64741-44-2	2.4E-01	24	120	Health & Particulate	SL-MD	B2	AERMOD	86.40	72%
Hydrotreated Middle Distillate	64742-46-7	2.9E-02	24	1,750	Health	SL-JSL	B2	Tier 1 assessment	50.46	3%
Hydrotreated Light Distillate	64742-47-8	3.4E-02	24	1,750	Health	SL-JSL	B2	Tier 1 assessment	54.94	3%
Hydrotreated Heavy Naphtha	64742-48-9	4.3E-02	24	2,600	Health	Schedule 3	B1	Tier 1 assessment	75.30	3%
Severely Hydrotreated Heavy Naphthenic Distillate	64742-52-5	6.7E-02	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	108.31	90%
Hydrotreated Light Naphthenic Distillate	64742-53-6	0.0E+00	24	500	Health	SL-JSL	B2	Tier 1 assessment	0.00	<1%
Solvent Dewaxed Light Paraffinic Distill	64742-56-9	1.2E-03	24	50	Health	SL-JSL	B2	Tier 1 assessment	2.26	5%
Medium Aliphatic Solvent Naphtha	64742-88-7	8.9E-04	24	219	N/A	Maximum GLC	N/A	Tier 1 assessment	1.8	<1%
Heavy Aromatic Naphtha	64742-94-5	1.5E-02	24	500	Health	SL-JSL	B2	Tier 1 assessment	27.58	6%
Ethoxylated C10-16 Alcohols	68002-97-1	1.5E-02	24	102	Health	SL-PA	B2	Tier 1 assessment	24.97	24%
Ethoxylated Alcohol (C12-15)	68131-39-5	9.5E-03	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	16.83	14%
Alcohols, C12-18, ethoxylated propoxylated	69227-21-0	0.0E+00	24	34	Health	SL-PA	B2	Tier 1 assessment	0.00	<1%
2-Ethylhexanol	104-76-7	0.0E+00	1	600	Odour	Guideline	B1	Tier 1 assessment	0.0	<1%
Diethylene Glycol Monobutyl Ether	112-34-5	1.0E-03	24	65	Health	Guideline	B1	Tier 1 assessment	2.05	3%
Stearyl Alcohol	112-92-5	2.8E-04	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	0.54	<1%
1-EICOSANOL	629-96-9	1.7E-03	24	15	Health & Particulate	SL-JSL	B2	Tier 1 assessment	3.05	20%
Hydroxyethylidenediphosphonic Acid	2809-21-4	6.0E-03	24	15	Health & Particulate	SL-JSL	B2	Tier 1 assessment	10.63	71%
2-CYCLOHEXENE-1-OCTANOIC ACID, 5(OR 6)-CARBOXY-4-HEXYL-	53980-88-4	6.6E-03	24	120	Health & Particulate	SL-MD	B2	Tier 1 assessment	11.49	10%
Alcohols, C12-14-secondary, ethoxylated	84133-50-6	1.2E-03	24	86	Health	SL-PA	B2	Tier 1 assessment	2.20	3%

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### Notes:

1. The MECP Schedule 3 limits and screening levels in "Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants" and concentrations previously reviewed and approved by the MECP during the ECA review were used for the assessment criteria.

SL-JSL: Jurisdictional Screening Levels

SL-MD: Ministry-derived (MD) Screening Levels

SL-PA: Previously Accepted (PA) Screening Levels

Maximum GLC –Maximum ground level concentration previously approved by the MECP during the application of the existing ECA

2. Benchmark 1 (B1) values and Benchmark 2 (B2)

3. For Tier 1 assessment, the total POI concentration for each contaminant was calculated by adding the concentration from each individual source that could emit the common contaminant. For Tier 2 assessment (AERMOD), the results were obtained from the modelling output with anomalies removed.