Supporting Information

A Simple and Highly Sensitive Colorimetric Detection Method for Gaseous Formaldehyde

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Experimental:

All reagents used were analytical-reagent grade, obtained from Sigma-Aldrich, and used without further purification unless otherwise specified. A certified, premixed formaldehyde gas tank was obtained from Matheson Tri-Gas Corp. through S. J. Smith, Co. (Urbana, IL). Polyvinylidene difluoride (PVDF, $[CH_2CF_2]_n$) membrane (thickness: 165μm; pore size: 0.45μm) was obtained from VWR Scientific. (Batavia, IL).

For printing of the sensor arrays, we prepared polymer-colorant solutions in 2-methoxyethanol using commercially available poly(ethyleneglycol) bis(3-amino-propyl)-terminated (MW 1500), butyl benzyl phthalate, and poly(ethyleneglycol) (MW 400) with a variety of chemically responsive indicators (Supporting Information Table S1). The solutions were loaded into a multihole Teflon ink well. Sensor arrays were printed by a robotic printer (Nanoprint Microarray Printer, ArrayIt Co., Mountain View, CA) using an array of 30 or 36 floating slotted pins (which delivered approximately 130nL each) by dipping into the ink well and transferring to a hydrophobic PVDF membranes. Once printed, the arrays were vacuum dried for 24 hours and aged in a sealed bag under nitrogen for at least 2 days before sensing experiments were performed.

Gas streams containing formaldehyde at lower concentrations were prepared by mixing the prediluted formaldehyde gas from the premixed tank with dry and wet nitrogen gas. Importantly, in all cases, gas stream concentrations and relative humidity were confirmed by in-line analysis using an FTIR multi-gas analyzer, MKS Instruments model 2030. MKS digital mass flow controllers were used to achieve the desired concentrations and relative humidity (cf. SI Figures S1). For high concentrations of formaldehyde (i.e., 15 and 20 ppm), gas streams were produced by flushing dry nitrogen through a Teflon tube containing paraformaldehyde fine powder, and mixing with dry and wet nitrogen gas. Again concentrations were confirmed by in-line FTIR analysis.

For all sensing experiments, the arrays were imaged on an ordinary flatbed scanner (Epson Perfection V200); the before-exposure image was acquired after 2 min. flow of 50% RH N_2 flow at 500 sccm. After-exposure images were acquired every minute again at 500 sccm. Difference maps were obtained by taking the difference of the red, green, and blue (RGB) values from the center of every colorant spot (~300 pixels) from the "before" and "after" images; all difference maps shown here are averages of multiple trials. Digitization of the color differences can be performed using Adobe Photoshop™ or with a customized software package, ChemEye™ (ChemSensing, Inc., Champaign, IL).

The chemometric analysis was carried out on the color difference vectors (provided as a database in Supporting Information, Table S3) using the Multi-Variant Statistical Package™ (MVSP v.3.1, Kovach Computing); in all cases, minimum variance (i.e., "Ward's Method") was used for the HCA clustering.

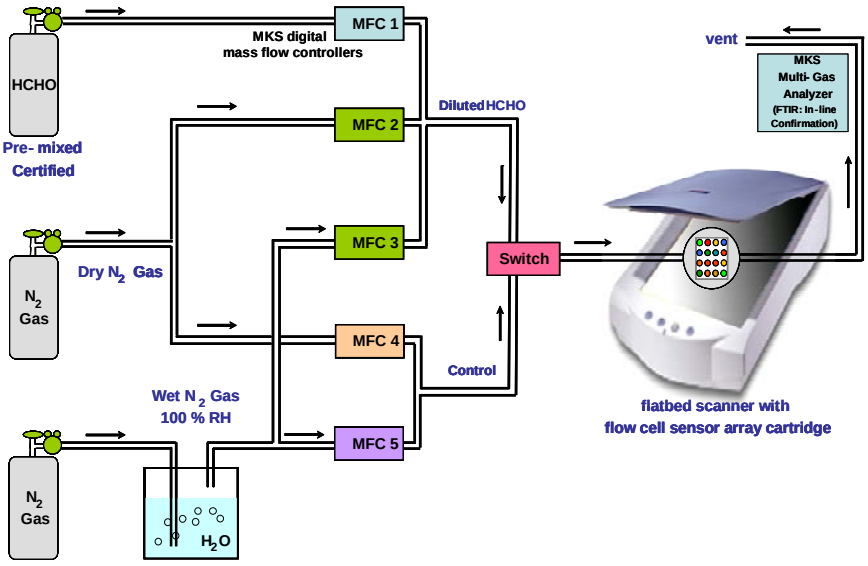

Figure S1. Gas mixing rig used for exposure of colorimetric sensor arrays. The box labeled "switch" is actually a series of three three-way valves, which allows for venting and also diversion of analyte stream to the MKS multi-gas analyzer. MFC = mass flow controller.

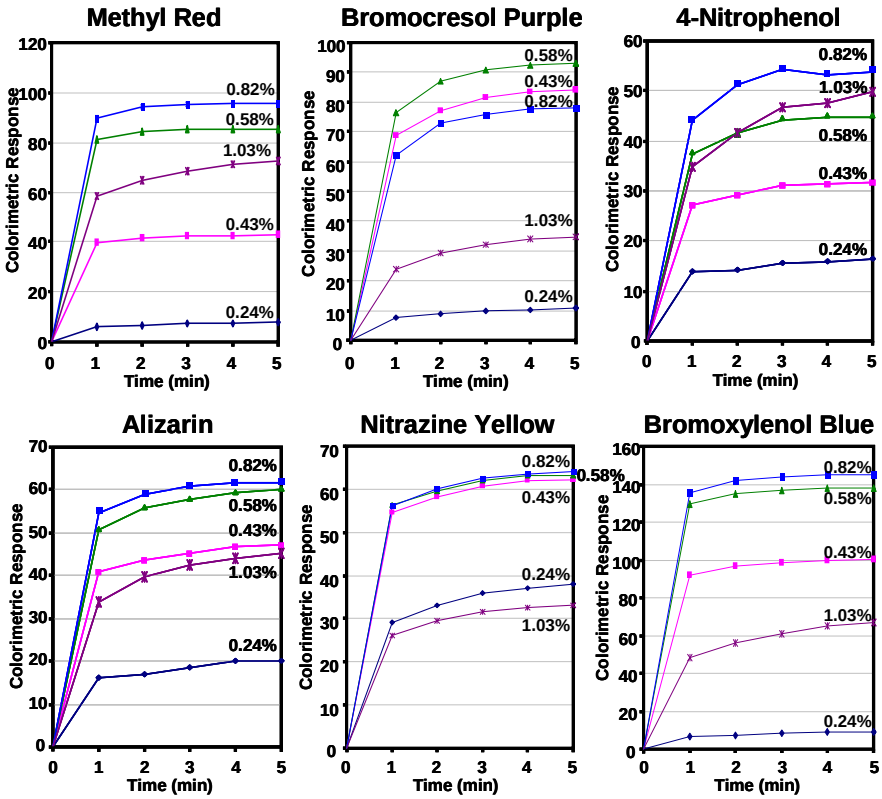

Figure S2. Colorimetric response (i.e., $(\Delta_R^2+\Delta_G^2+\Delta_B^2)^{½}$) of each pH indicator versus response time at various polymeric amine wt. % after exposure 20 ppm formaldehyde, at 500 sccm, 50% relative humidity and 298 K.

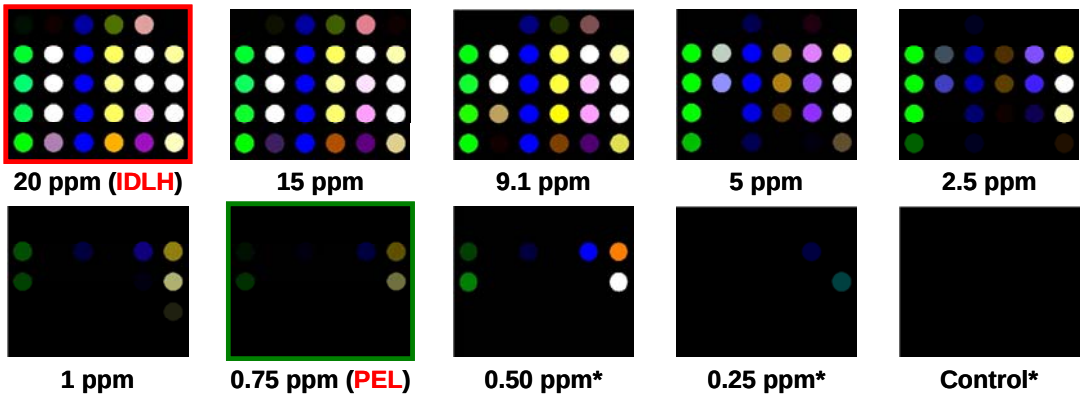

Figure S3. Color difference maps of formaldehyde at nine different concentrations after 1 minute exposure at 500 sccm, 50% relative humidity and 298 K. A full digital database is provided in the Supporting Information Table S3. For display purposes, the color range of these difference maps are expanded from 4 to 8 bits per color (RGB range of 4-19 expanded to 0-255), except for control and several weak responses that are marked with asterisk (RGB range of 2-5 expanded to 0-255).

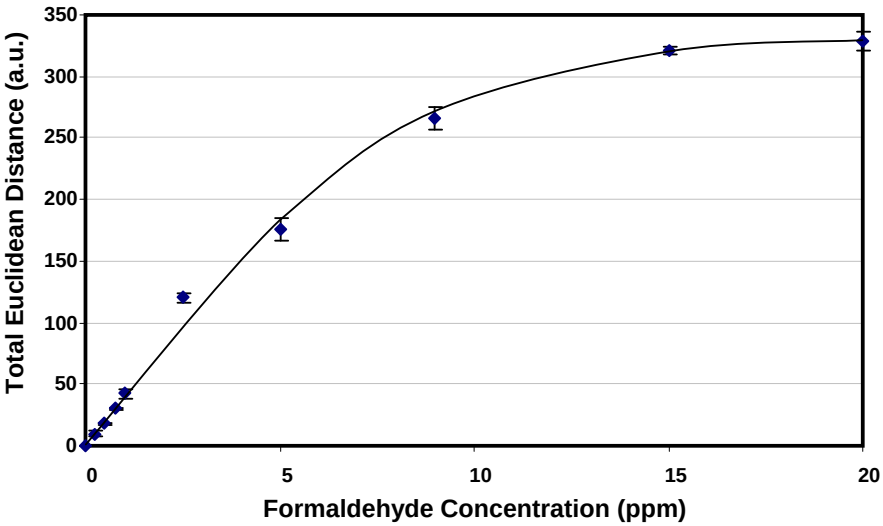

Figure S4. The total Euclidean distance of the color change of the array versus formaldehyde concentration. A 90-dimensional vector is defined from the changes (after 1 min. exposure minus before exposure) in the red, green and blue values of the thirty spots in our 6x5 array. The Euclidean distance is simply the total length of this 90-dimensional color-difference vector.

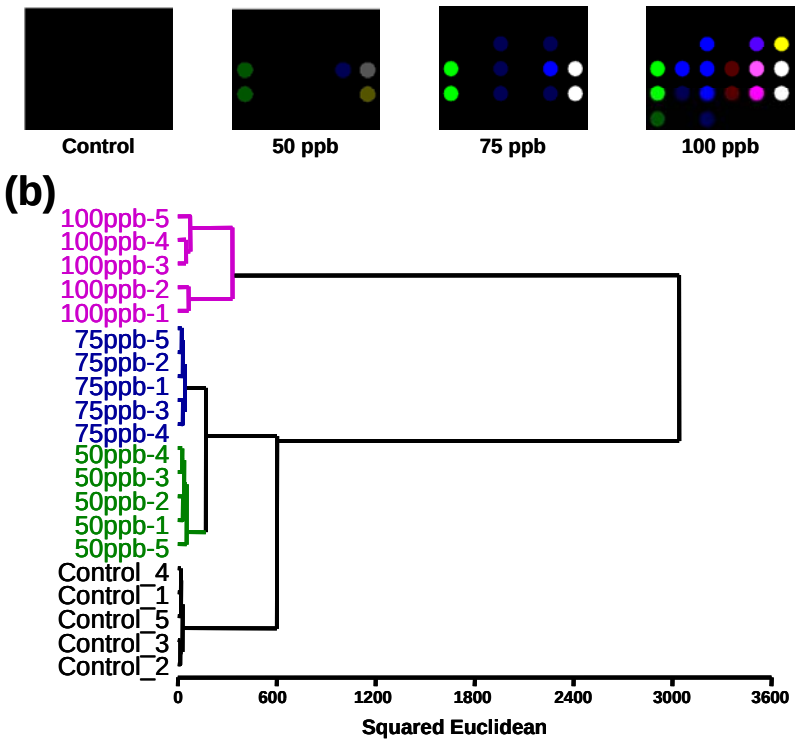

Figure S5. (a) Color difference maps of formaldehyde at 100 ppb, 75 ppb, 50 ppb, and a control after 10 minutes of exposure at 500 sccm, 50% relative humidify and 298 K. For display purposes, the color range of these difference maps are expanded from 2 to 8 bits per color (RGB range of 1-3 expanded to 0-255). (b) Hierarchical cluster analysis (HCA) for formaldehyde at 100 ppb, 75 ppb, and 25 ppb concentrations and a control. All experiments were run in quintuplicate trials; no confusions or errors in classification were observed in 20 trials, as shown.

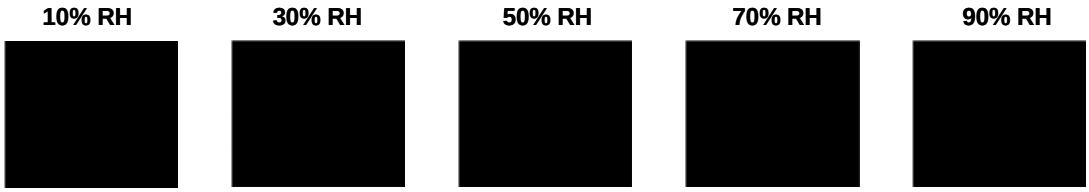

Figure S6. The response of array to variations in humidity from 10% to 90% RH; average of three trials is shown. For display purposes, the color range of these difference maps is expanded from 4 to 8 bits per color (RGB range of 4-19 expanded to 0-255).

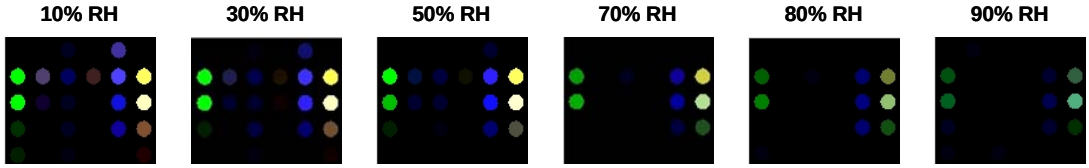

Figure S7. Difference maps of the colorimetric sensor array for formaldehyde at 1.5 ppm at different relative humidities at room temperature, after one minute exposure time, 500 sccm. For display purposes, the color range of these difference maps are expanded from 4 to 8 bits per color (RGB range of 4-19 expanded to 0-255).

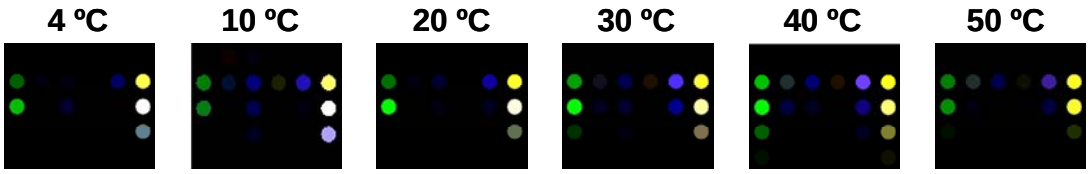

Figure S8. Difference maps of the colorimetric sensor array for formaldehyde at 1.5 ppm concentration at 50% RH and different temperatures, after one minute exposure time, 500 sccm. For display purposes, the color range of these difference maps are expanded from 4 to 8 bits per color (RGB range of 4-19 expanded to 0-255).

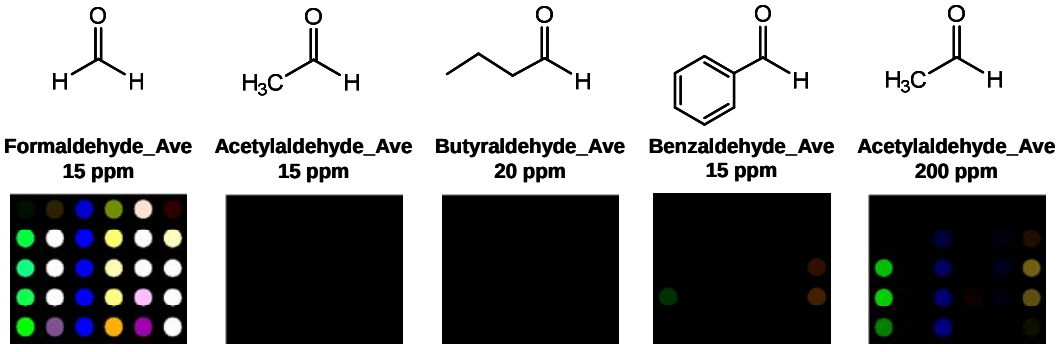

Figure S9. Difference maps of the colorimetric sensor array for several aldehydes at room temperatures and 50% RH, after one minute exposure time, 500 sccm. For display purposes, the color range of these difference maps are expanded from 4 to 8 bits per color (RGB range of 4-19 expanded to 0-255).

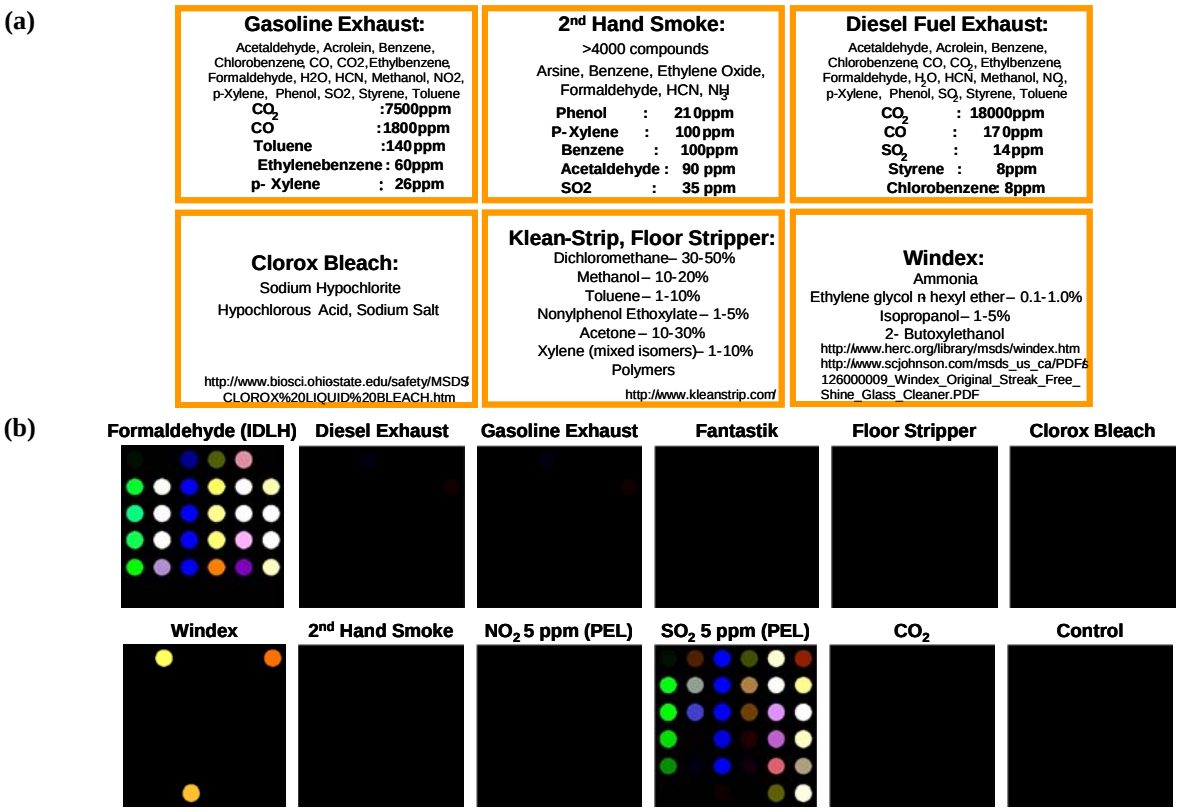

Figure S10. (a) The compositions for several vapor phase interferents. (b) Difference maps of the colorimetric sensor array for 10 interferents after one minute exposure at 500 sccm. For display purposes, the color range of these difference maps are expanded from 4 to 8 bits per color (RGB range of 4-19 expanded to 0-255). Interferents tested: second-hand smoke, diesel fuel exhaust, gasoline exhaust, floor stripper, Windex®, Fantastik®, and Clorox® bleach at 2% of their saturation vapor concentrations; sulfur dioxide and nitrogen dioxide at their respective PEL concentrations; and the carbon dioxide concentration at ~375 ppm (i.e., approximately ambient atmospheric concentration).

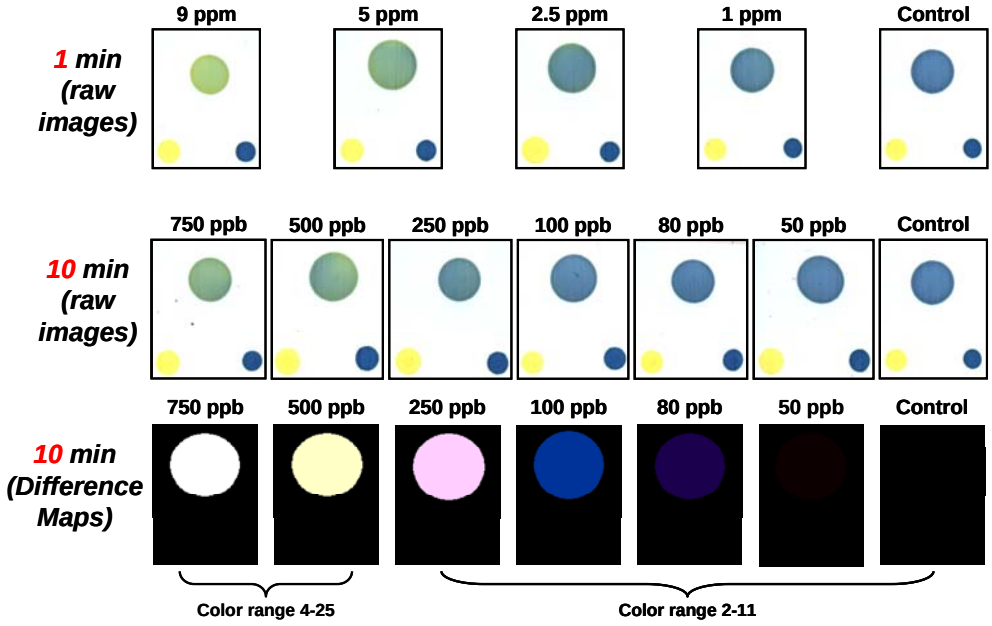

Figure S11. A simplified formaldehyde sensor showing the response after 1 minutes exposure (1~9 ppm) or 10 minutes exposure (50~750 ppb). The top spot is used for detection of formaldehyde and consists of bromoxylenol blue in a 0.6 wt.% amine-PEG film; the bottom two spots (left and right) are indicators for acidic and basic interferents vapors (respectively) and consist of bromoxylenol blue (lower left spot) and tetrabutylammonium hydroxide treated nitrazine yellow (lower right spot) in a non-amine PEG film.

Table S1. List of indicators and formulations.

Spot #	Name
1	Methyl Red + Formulation I
2	Bromocresol Purple + Formulation I
3	4-Nitrophenol + Formulation I
4	Alizarin + Formulation I
5	Nitrazine Yellow + Formulation I
6	Bromoxylenol Blue + Formulation I
7	Methyl Red + Formulation II
8	Bromocresol Purple + Formulation II
9	4-Nitrophenol + Formulation II
10	Alizarin + Formulation II
11	Nitrazine Yellow + Formulation II
12	Bromoxylenol Blue + Formulation II
13	Methyl Red + Formulation III
14	Bromocresol Purple + Formulation III
15	4-Nitrophenol + Formulation III
16	Alizarin + Formulation III
17	Nitrazine Yellow + Formulation III
18	Bromoxylenol Blue + Formulation III
19	Methyl Red + Formulation IV
20	Bromocresol Purple + Formulation IV
21	4-Nitrophenol + Formulation IV
22	Alizarin + Formulation IV
23	Nitrazine Yellow + Formulation IV
24	Bromoxylenol Blue + Formulation IV
25	Methyl Red + Formulation V
26	Bromocresol Purple + Formulation V
27	4-Nitrophenol + Formulation V
28	Alizarin + Formulation V
29	Nitrazine Yellow + Formulation V
30	Bromoxylenol Blue + Formulation V

Spot numbering from left to right, top to bottom for 6x5 array shown in Figure 1.
TBAH: 1.0 M tetrabutylammonium hydroxide in 2-methoxyethanol; amino-PEG: poly(ethylene glycol) bis(3-aminopropyl)terminated
Formulation I: amino-PEG (100mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation II: amino-PEG (200mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation III: amino-PEG (300mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation IV: amino-PEG (500mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation V: amino-PEG (750mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol

Table S2. List of indicators and formulations for interferents test.

Spot #	Name
1	Methyl Red + Formulation I
2	Bromocresol Purple + Formulation I
3	4-Nitrophenol + Formulation I
4	Alizarin + Formulation I
5	Nitrazine Yellow + Formulation I
6	Bromoxylenol Blue + Formulation I
7	Methyl Red + Formulation II
8	Bromocresol Purple + Formulation II
9	4-Nitrophenol + Formulation II
10	Alizarin + Formulation II
11	Nitrazine Yellow + Formulation II
12	Bromoxylenol Blue + Formulation II
13	Methyl Red + Formulation III
14	Bromocresol Purple + Formulation III
15	4-Nitrophenol + Formulation III
16	Alizarin + Formulation III
17	Nitrazine Yellow + Formulation III
18	Bromoxylenol Blue + Formulation III
19	Methyl Red + Formulation IV
20	Bromocresol Purple + Formulation IV
21	4-Nitrophenol + Formulation IV
22	Alizarin + Formulation IV
23	Nitrazine Yellow + Formulation IV
24	Bromoxylenol Blue + Formulation IV
25	Methyl Red + Formulation V
26	Bromocresol Purple + Formulation V
27	4-Nitrophenol + Formulation V
28	Alizarin + Formulation V
29	Nitrazine Yellow + Formulation V
30	Bromoxylenol Blue + Formulation V
31	Methyl Red + Formulation VI
32	Alizarin + Formulation VI
33	Nitrazine Yellow + Formulation VI
34	Methyl Red + TBAH + Formulation VI
35	Alizarin + TBAH + Formulation VI
36	Nitrazine Yellow + TBAH + Formulation VI

Spot numbering from left to right, top to bottom for 6x6 array shown in Figure 1.
The first 30 spots are identical with Table S1.
TBAH: 1.0 M tetrabutylammonium hydroxide in 2-methoxyethanol; amino-PEG: poly(ethylene glycol) bis(3-aminopropyl)terminated
Formulation I: amino-PEG (100mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation II: amino-PEG (200mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation III: amino-PEG (300mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation IV: amino-PEG (500mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation V: amino-PEG (750mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol
Formulation VI: PEG 1500 (300mg) + Benzyl butyl phthalate (500mg) + PEG 400 (300mg) + 10mL 2-Methoxyethanol

Table S3. Color difference database for formaldehyde at 9 different concentrations and a control.

	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	G4	B4	R5	G5	B5	R6	G6	B6	R7	G7	B7	R8	G8	B8	R9	G9	B9
20ppm_1	0.773911	-5.492752	-0.440578	5.571014	5.431885	-2.443481	0.017395	1.718842	15.91884	10.12174	11.27826	-2.831879	19.13913	13.82319	-13.74203	4.597107	2.930435	-1.173912	0.521744	-42.30145	-7.547825	48.05217	47.26087	-26.76811	0.646362	2.107254	31.16521
20ppm_2	0.050728	-5.975361	-0.36087	5.055069	3.692757	-1.311596	0.547829	1.314492	14.55218	9.433331	11.21449	-3.172463	18.92898	14.12029	-14.36811	4.386963	1.855072	-1.462319	0.991303	-40.06812	-6.973913	45.83382	44.74686	-27.11691	0.291784	1.427048	27.45314
20ppm_3	-0.617401	-5.742027	-1.646376	5.142029	3.553619	-2.260872	0.156509	0.484055	13.64928	10.42899	11.38841	-2.791306	18.55942	13.82898	-15.62609	5.037674	2.098557	-0.631889	-0.298553	-36.10145	-7.97971	44.6029	43.81739	-27.66377	-0.510147	0.942017	24.95363
20ppm_4	0.078262	-6.014488	-0.197102	4.156525	3.072464	-0.736229	1.014496	1.60289	15.17682	8.069565	10.66377	-3.31884	18.13333	13.42319	-13.09855	3.115952	1.530426	-0.684059	1.339127	-40.95362	-6.756521	47.8	46.34783	-26.56522	0.718842	1.481155	30.43768
20ppm_5	0.023193	-5.936234	-0.524637	5.953613	4.313049	-1.886963	0.081161	1.026093	13.92754	10.7971	11.76521	-3.026085	19.72464	14.81739	-15.63768	5.657974	2.179718	-2.240578	0.643478	-39.18261	-7.191305	45.09855	44.07537	-27.12174	0.666656	1.857971	26.96811
15ppm_1	-0.057968	-4.866669	-1.321739	4.779709	3.318848	-1.147827	0.857971	1.269577	12.7971	8.58551	9.49855	-3.26667	16.33043	11.9855	-13.3942	4.052185	1.846375	-0.947823	0.663773	-38.37681	-6.394203	46.52174	46.19421	-27.4087	0.03479	1.626083	29.33624
15ppm_2	1.72464	-4.168114	-0.510145	9.681168	12.08116	6.008698	3.785507	8.605789	22.42609	9.530426	10.72754	-2.200005	17.91304	12.97392	-13.72754	4.768112	2.710144	0.257973	0.527527	-40.74493	-6.953623	45.24348	44.69276	-26.16812	0.069565	1.718842	29.13625
15ppm_3	-0.034775	-4.895653	-0.968117	5.107254	3.915939	-1.536232	0.371002	0.828995	14.67535	8.843491	10.15363	-2.921738	17.86667	12.66666	-13.55942	9.382599	4.979706	-1.402893	0.852173	-37.38551	-7.263767	43.27826	43.08116	-25.23479	-0.39711	0.539124	28.77393
15ppm_4	0.634781	-5.211594	-2.084057	5.176819	2.681152	-1.347824	0.988419	1.339127	11.62898	7.968109	9.947823	-3.324631	19.57681	13.69276	-13.87826	3.176804	2.973907	-0.518845	1.936234	-39.05798	-7.350723	43.17971	42.43188	-27.11015	0.597092	1.660873	28.49855
15ppm_5	0.089859	-5.115936	-2.086956	4.197113	3.649277	-1.77681	0.657974	0.855072	12.09854	8.779724	10.18261	-2.86377	18.53043	13.53623	-13.83478	4.968109	2.457977	-1.426086	0.750717	-39.25507	-7.47826	45.11594	45.48116	-26.64058	0.318848	1.602905	28.44638
9ppm_1	-0.08696	-3.588402	-0.97971	4.327545	2.014496	-0.747826	0.982605	1.173904	12.03188	6.892761	7.782616	-2.182602	12.85797	10.66377	-9.686954	2.136246	2.559433	-0.930435	1.736221	-37.22319	-6.266666	32.32464	33.85507	-22.29855	1.350723	2.36232	25.96811
9ppm_2	-0.301453	-3.31884	-0.57971	3.379715	2.886948	-0.857971	-1.324631	0.736221	12.0058	4.875366	7.417381	-3.991318	11.7971	8.721741	-9.530434	2.89856	2.098557	-2.953629	0.831879	-34.69856	-5.782608	26.92754	29.14782	-23.12753	-0.646378	0.568115	23.35652
9ppm_3	0.437683	-2.524635	-0.063766	-0.121735	0.573914	-0.924637	0.055069	0.631882	11.37972	4.895645	5.162323	-1.060883	11.73044	9.101448	-8.455078	3.197098	1.460876	-0.359421	1.220276	-31.28116	-4.417389	27.14492	29.18841	-19.57391	0.591309	1.608704	23.48406
9ppm_4	0.397095	-3.197105	-0.889856	2.376801	3	-0.13044	1.402908	1.573914	13.52753	5.855072	8.515945	-2.513039	13.15362	9.910141	-8.472462	2.36232	2.12175	-1.611595	1.463776	-35.99131	-5.994202	27.15652	30.09855	-20.07536	0.857971	1.756516	27.70435
9ppm_5	0.527527	-3.573914	-0.272463	3.710144	3.443481	-1.092751	0.686951	1.556519	14.41449	7.495651	8.779709	-2.153625	14.42609	11.17102	-10.4058	4.020294	1.060867	-1.057976	1.600006	-37.66667	-5.492752	28.46957	31.30725	-23.64058	0.168106	1.968109	26.05217
5ppm_1	-0.802902	-2.020287	-1.043478	1.962326	1.278259	-0.13913	0.26088	-0.211594	9.915939	3.162323	3.962318	-1.182617	7.002899	4.924637	-5.623192	1.234772	0.304352	-0.385506	0.324646	-28.46667	-3.904346	13.71884	15.66666	-15.13333	0.953629	0.289841	19.2058
5ppm_2	-1.026077	-2.90435	-0.342028	1.747833	0.800003	-0.976814	-1.13913	-0.588409	9.13913	3.889862	4.45507	-1.901451	6.956524	5.014488	-6.428986	2.08696	0.072464	-1.150726	0.472458	-29.86666	-3.930433	16.64637	18.11015	-17.28406	-0.744919	0.292755	20.46088
5ppm_3	-0.142029	-1.243484	-0.014492	1.794189	1.342026	-0.492752	-0.547836	-0.834793	9.808701	2.217392	3.365219	-1.753616	6.492756	4.62899	-5.739128	1.194214	1.25798	-1.510139	0.591309	-25.29855	-4.08116	17.16232	18.66087	-15.64637	-0.924637	1.055084	20.08116
5ppm_4	-0.936234	-2.41449	0.289856	0.75943	0.179718	-1.898552	-1.428986	-0.994202	9.895645	1.460876	2.924637	-0.486969	5.524639	3.915939	-5.055069	1.588394	-0.226089	-0.77681	-0.411591	-28.69276	-4.837679	18.57102	20.01159	-16.74493	-1.800003	-0.214493	21.48406
5ppm_5	-0.147827	-2.034782	0.005798	3.043472	2.034775	-3.263771	0.046387	0.486969	10.52174	3.689865	4.124634	-2.055069	7.620289	5.313049	-7.057976	1.205795	0.568115	-2.342026	0.58551	-28.9855	-4.347826	15.08116	17.24348	-16.92464	0.979706	1.08696	19.56812
2.5ppm_1	0.266663	-1.023186	-1.089855	1.553619	1.657974	-0.994209	0.46666	0.768112	5.971024	2.176804	2.426086	-1.046379	4.460869	2.617393	-4.023193	2.008698	0.324631	-0.281158	1.547821	-19.88406	-3.162319	10.68116	12.40579	-12.4087	0.304337	1.263763	14.97102
2.5ppm_2	0.10434	-0.910141	-0.776812	0.75943	0.495651	-0.353622	0.420288	-0.078262	7.997101	1.692749	1.742027	1.440582	4.162319	3.388405	-2.739128	1.237671	0.176819	-0.930435	0.878265	-17.96812	-2.982609	7.762321	8.576817	-10.52753	0.231873	0.391296	16.1884
2.5ppm_3	0.107239	-1.05217	-0.637682	1.023193	0.399994	-2.159424	-0.388397	-0.657974	5.026077	0.179703	1.918839	-3.373917	3.226089	3.002899	-3.449272	0.03479	0.817383	-1.150726	0.255081	-18.17681	-3.028986	7.162319	7.518845	-9.373909	-0.481171	0.411591	13.57101
2.5ppm_4	0.150711	-0.727531	-0.492754	1.26088	1.353622	-1.382614	0.252182	0.417389	5.942017	1.339127	1.889854	0.652176	3.50145	2.614494	-2.205803	0.437683	0.240585	-0.843483	0.730438	-18.04058	-2.388405	6.750725	7.13913	-8.684059	-0.576813	0.3797	12.14203
2.5ppm_5	0.107244	-1.028981	-0.259904	1.195175	0.966181	-1.331403	0.228027	0.014491	6.561345	1.085989	1.839612	-0.431885	3.384542	2.673431	-2.645411	0.802902	0.824153	-0.743965	0.964254	-19.48309	-3.136232	8.033817	8.775846	-9.158452	-0.351695	0.54686	14.49758
1ppm_1	-0.046387	-0.240578	-0.008696	0.663757	0.095657	-1.536232	-0.005798	0.68985	3.576813	-0.730438	-0.008698	-0.823181	0.617393	0.086952	-1.344933	0.440582	0.318848	-0.228989	0.614487	-8.292747	-1.292755	2.263767	3.628986	-4.072464	0.892761	0.002899	8.594208
1ppm_2	-0.994202	-0.869568	0.18261	0.150726	0.420288	-2.049278	-0.962311	-0.350723	3.750732	-0.031876	-0.281158	0.107239	1.292755	0.159424	-1.631882	-0.252182	-0.507248	-1.962318	0.095657	-11.21159	-0.272465	2.724636	3.527538	-5.826088	-0.663773	-0.779709	8.608704
1ppm_3	-0.907242	-0.237679	-0.072462	-0.069565	-0.359421	-1.052177	-1.118835	0.176819	1.507248	-0.315948	0.411591	-0.559418	0.872463	0.840584	-1.886955	-0.182617	-0.040573	-2.246376	-0.191299	-7.350723	-0.730434	2.849277	3.469563	-4.652176	-1.031891	0.811584	7.040573
1ppm_4	-0.211594	-0.45797	0.736233	0.130432	0.39711	0.113045	-1.289856	-0.049271	4.942032	-0.417404	1.533333	-0.333336	0.86087	0.918839	-1.171013	-0.185501	0.988403	-0.208694	-0.295654	-11.47537	-1.44058	2.962318	3.846375	-4.553627	-0.478256	-0.257965	10.38261
1ppm_5	-0.356522	-0.94783	-0.084059	-0.678268	-0.663773	-0.420288	-0.817383	0.41449	1.837677	0.118835	0.82029	-0.869568	1.489853	0.953621	-1.376808	0.443481	-0.107239	-1.715942	-0.98262	-8.892754	-0.50145	2.443478	2.649273	-3.521736	-0.521744	-0.63768	7.092758
0.75ppm_1	-0.371017	-0.608696	-0.350723	-0.602905	-1.669571	-0.31884	-1.043472	-1.286957	2.765213	0.255081	-0.692757	0.162323	0.504349	0.640579	-0.663773	0.373901	-1.501434	0.037682	-0.199997	-4.930435	-1.718842	1.243481	0.872463	-2.614494	-1.927536	-1.623199	5.002899
0.75ppm_2	-1.147827	-1.150726	-0.889854	-0.495667	-0.446381	-0.669563	-1.646378	-0.89566	1.228989	-0.336227	-0.463776	-0.614487	0.347828	0.440582	-1.794205	-0.797104	-1.611588	-1.898552	-0.489853	-2.310143	-0.524635	0.130432	0.324638	-1.13623	-1.356522	-1.191299	4.475357
0.75ppm_3	-0.892761	-0.649277	-1.171013	1.005783	0.568115	-0.521736	0.191315	-0.391312	2.947815	-0.014496	0.382607	-0.376816	0.547825	0.469566	-1.582611	-0.794205	-0.472473	-1.515945	-0.881165	-7.142029	-0.875362	1.475361	1.872463	-3.295654	-0.13623	-0.130432	6.153625
0.75ppm_4	1.17392	0.127533	-0.211594	0.979706	1.231888	-0.211594	0.202896	0.191299	2.597107	0.185516	0.997101	0.350723	1.2029	0.342026	-1.101448	0.226089	-0.043488	-0.55072	0.399994	-6.695648	-0.655075	2.046375	3.052174	-3.368111	0.394196	0.350723	7.162308
0.75ppm_5	1.956528	0.660873	1.023188	1.255081	1.22319	-0.107246	1.431885	0.107254	1.602905	-0.011597	1.347824	-0.165222	1.15942	0.739128	-0.962318	0.39711	0.600006	-0.327538	1.226089	-4.997101	-0.547825	1.104347	2.089851	-1.34494	0.788406	1.255081	3.434784
0.5ppm_1	-0.602905	-0.144928	-0.542028	0.075363	-0.591309	-0.918839	-0.892761	-0.489853	1.295654	-1.295654	0.417389	0.382599	0.281158	0.620293	-0.695648	-1.011597	-0.39711	-0.510139	0.342026	-3.368118	-0.579712	0.930435	0.571014	-1.707253	-0.565216	-0.58551	3.281158
0.5ppm_2	0.684052	-0.602898	0.571014	-0.631882	-0.727524	0.936234	0.50145	-0.649277	1.44928	0.886948	-0.159424	0.762314	0.707253	0.04348	0.185509	0.530441	0.205795	-0.884056	0.431885	-2.536232	-0.04348	0.718842	0.260864	-1.518845	1.008698	-0.762314	2.420288
0.5ppm_3	-0.857971	-0.472466	-0.142029	0.188416	-0.869568	-0.785507	-0.524643	0.368118	1.020294	-0.052185	-0.089851	0.011597	0.228985	-0.559418	-1.344925	-0.626083	-0.36232	-0.791306	-0.510147	-3.68116	-1.199999	0.684059	0.460873	-3.159424	-1.118851	-0.075363	4.002899
0.5ppm_4	-0.020294	-0.060875	-0.553623	0.602905	0.765213	-1.568115	0.591309	0.997101	-0.034775	0.457962	0.272461	-0.194206	0.426086	0.446373	-1.324638	1.208694	0.565216	-2.017395	0.762314	-3.394203	-0.562319	0.950722	1.313042	-1.962318	1.142029	-0.686966	2.556519
0.5ppm_5	-0.272461	-0.31884	-0.347828	-0.234787	-0.918839	-0.240578	-0.950729	-2.078262	-0.402893	-1.01738	-0.536232	-0.513046	0.237679	-0.556519	-0.13623	0.25798	-0.211594	-0.391304	-0.113037	-3.446373	-0.695652	0.794201	0.802895	-1.744934	-1.185516	-1.478271	3.342026
0.25ppm_1	0.060867	0.397102	0.460871	-0.191315	-0.884064	-1.101456	-0.420288	-0.782623	1.002899	-0.402908	-0.463768	-0.197098	0.147823	-0.165215	-0.666664	-1.086945	-0.715942	0.298553	-0.171021	-1.533333	-0.394203	0.304348	0.234783	-0.942032	-0.040588	-0.385498	0.48407
0.25ppm_2	0.315948	-0.791306	-1.101452	0.179718	-0.86087	-1.321739	-0.573914	-0.301453	0.060867	0.043472	-0.910149	-0.58551	0.02029	-0.066666	-0.307251	-0.043472	-1.559418	-0.162323	-0.002899	-1.895653	-1.13913	0.234783	0.45797	-0.872467	-0.814499	-0.333344	-0.344925
0.25ppm_3	-0.107254	-0.663773	-0.913044	-1.13623	-0.431885	-1.426086	-1.072464	-1.924637	-1.153625	-0.692749	-0.756523	-0.478256	0.02319	-0.750725	0.026085	-1.133331	-0.886963	-1.771011	-0.05217	-3.376808	-0.805798	-0.533333	0.168118	-1.788406	-1.040573	-2.014496	0.417389
0.25ppm_4	0.582611	-0.58551	-0.965218	-0.452164	0.539139	0.45507	0.669571	0.199997	-1.55072	0.686951	0.150726	-0.031876	-0.153622	-0.504349	-0.675362	1.452179	-0.284058	0.110146	1.17392	-1.31884	-0.689854	-0.188404	0.695648	-1.27536	0.165222	-0.301453	-0.36232
0.25ppm_5	-0.918839	-0.327538	-0.713043	-0.591309	-0.017395	-2.400002	-1.918839	-1.843491	0.08696	-0.237671	-0.156525	-1.527542	0.04348	-0.420288	-0.194206	-0.495651	-0.881165	-0.49855	-0.950729	-2.4058	-0.49855	0.17971	0.707249	-2.411591	-1.127548	-0.869568	0.553619
Control_1	-0.057968	-0.269569	-0.142031	-0.182617	1.078262	-0.437683	-0.359421	-0.142029	-1.50145	-0.011597	-0.27536	-0.446381	-0.098553	0.014496	-0.153625	1.066666	-0.631882	0.089859	0.159424	0.124641	-0.02029	-0.515942	0.278263	-1.049278	-0.255066	0.228989	-1.695663
Control_2	-0.472458	-0.333336	0.811594	-0.168121	-0.284058	0.208694	-1.359421	-0.417389	-0.771027	-1.055069	-0.562317	0.205795	-0.631886	-0.257973	-0.142029	-1.246384	0.153625	0.510147	-1.486969	0.144928	-0.046377	-0.43478	-0.069565	0.211594	-1.597092	0.011581	-1.324646
Control_3	-1.614502	-0.089851	-0.652174	-0.426102	-1.002899	0.09565	-1.602905	-1.547821	-2.614502	-1.220291	-0.655075	-0.304344	-0.489853	-0.794205	0.263771	-0.46376	-0.594193	1.49855	-2.495651	-0.602898	-0.95652	-0.481159	-0.492756	-0.802895	-1.701447	-1.191299	-2.234787
Control_4	-0.431885	-0.292755	-0.547825	0.298553	0.478271	-0.626091	-0.130432	-0.397095	0.582611	0.704346	0.315941	0.721741	-0.107246	0.434784	0.243477	-0.486969	0.36232	0.915939	-0.278259	-0.130432	0.098549	0.121742	0	0.443474	-0.768112	0.281158	0.698547
Control_5	0.385498	0.243477	-0.084059	-0.510147	0.553619	0.142029	-0.147827	-0.620285	-1.171021	0.510132	-0.185501	0.092751	-0.127533	0.623192	0.495651	-0.600006	1.043488	-0.533333	0.55072	0.168114	-0.084059	-0.127537	0.002899	0.118843	-0.924652	0.147827	-0.579712

	R10	G10	B10	R11	G11	B11	R12	G12	B12	R13	G13	B13	R14	G14	B14	R15	G15	B15	R16	G16	B16	R17	G17	B17	R18	G18	B18
20ppm_1	30.56233	27.95072	-9.028992	35.44928	22.17391	-37.06087	61.86087	48.29855	-14.44637	5.382599	-90.01739	-10.72174	47.5971	47.81739	-42.52464	-1.631882	0.460876	43.50725	38.95942	33.28986	-11.83189	40.78841	20.91015	-39.16811	98.60289	82.52464	-33.78841
20ppm_2	28.48502	26.71015	-11.4744	34.56135	20.49179	-37.32271	64.52657	49.62029	-15.08599	4.829712	-80.55507	-11.7471	45.99275	46.01522	-43.90942	-1.071739	0.529713	39.27681	38.49638	33.62391	-14.23913	39.36449	19.49928	-39.02029	95.78623	79.42319	-31.39783
20ppm_3	28.12464	26.4087	-11.51595	33.90145	19.66377	-38.2029	65.92754	50.95073	-15.26956	4.617386	-74.84927	-12.99131	44.21449	44.36522	-43.21449	-1.695648	0.095657	38.77681	37.6087	33.61449	-13.44058	39.16522	19.82899	-39.14203	92.61449	77.18841	-31.08695
20ppm_4	28.87536	26.96522	-10.98261	34.44638	21.96522	-37.17681	56.69275	42.46667	-12.44058	5.118851	-88.38551	-9.649273	48.8116	49.31304	-44.90435	-0.889847	1.249268	42.73914	40.14783	34.87826	-14.16232	40.08406	21.33623	-39.9913	94.16231	76.74783	-29.28986
20ppm_5	28.45507	26.75652	-11.92464	35.33624	19.84638	-36.58841	70.95942	55.44347	-17.54783	4.6203	-79.9942	-11.92174	45.15073	44.35652	-42.95943	-0.994217	0.971024	37.28986	36.8	31.89565	-13.86087	39.35942	18.48406	-35.84638	96.48697	80.80579	-31.46667
15ppm_1	30.13043	27.27536	-10.25797	34.08696	20.75652	-36.30145	65.18551	50.55363	-14.46957	5.289856	-84.11015	-10.63189	48.15072	49.32464	-44.6029	-0.953629	0.257965	42.77681	40.84928	33.52753	-14.55072	39.37972	18.86377	-35.75942	99.91885	85.3971	-31.6058
15ppm_2	29.48696	27.12463	-10.75652	34.7971	20.26087	-35.01449	71.8029	55.92173	-16.14493	5.101456	-87.16812	-10.47536	44.2029	45.08406	-41.59999	-1.327545	0.521744	39.96521	39.32755	32.35652	-14.11305	39.3942	17.91015	-32.85507	99.66087	84.13622	-31.3942
15ppm_3	28.71885	26.3971	-10.55072	33.57681	19.09276	-36.4	67.3971	52.34203	-14.48985	5.391312	-83.87537	-12.01739	44.90435	45.93913	-41.31305	-1.055069	0.234787	41.86957	39.75073	34.12174	-13.26376	37.46957	17.95363	-34.58841	95.38551	81.82318	-30.52754
15ppm_4	29.26086	26.62899	-11.96812	35.16232	20.66087	-38.23479	67.42608	53.1855	-15.74493	5.889862	-86.95071	-11.01159	43.67246	45.06957	-45.87826	-0.634781	0.779709	40.32753	39.25217	32.65797	-15.37971	39.4087	18.96812	-37.16232	99.13333	84.86957	-31.61739
15ppm_5	30.50144	26.66956	-10.88117	34.56522	21.13623	-37.76522	70.25507	55.07246	-15.48985	5.660873	-83.36812	-10.63479	40.64058	41.17971	-42.42319	0.133331	0.388397	40.89854	38.6	31.58551	-12.77391	38.55363	18.66377	-36.85217	97.95362	82.96522	-31.4058
9ppm_1	25.0145	20.82898	-9.875359	27.87826	19.88696	-38.79421	64.51015	54.4029	-16.95652	5.831879	-76.66377	-8.504345	26.49855	26.84348	-33.26956	-0.104355	1.005798	31.84927	26.90145	20.85217	-8.281158	25.31015	15.33913	-37.14782	89.5797	81.42029	-30.47826
9ppm_2	21.5913	19.18551	-9.27536	26.93623	18.05508	-39.86957	57.71884	47.92464	-15.03768	4.67247	-69.75073	-8.266666	24.10145	25.97391	-33.51015	0.26088	0.278259	27.88406	26.26377	21.09566	-9.046379	28.66377	16.47536	-41.35363	85.78551	75.85798	-31.90145
9ppm_3	20.41738	17.5942	-8.582611	27.48116	19.10435	-38.72464	60.56812	48.77392	-14.48695	5.495651	-70.51885	-8.185509	25.74203	26.97391	-34.19421	-0.20871	0.368118	29.46668	26.4029	20.49565	-7.579712	27.96812	17.29275	-39.30724	85.94493	75.3971	-30.77681
9ppm_4	23.98841	21.88117	-9.756523	28.36522	19.36812	-38.10725	65.59709	54.65508	-15.93044	6.562317	-76.47537	-7.507248	28.14783	29.75942	-33.22609	-0.399994	1.188416	35.21159	30.68115	24.93913	-9.205795	29.51594	17.41739	-39.78551	90.65218	81.96812	-30.56522
9ppm_5	24.21159	20.73333	-9.220291	28.58261	19.10435	-39.15363	67.7739	56.18842	-16.7971	6.886963	-77.93913	-7.411594	28.24058	29.10725	-35.19711	-1.365204	1.46666	33.9913	30.12463	24.12463	-9.330437	30.48406	17.05797	-40.29855	90.23189	80.31594	-30.33624
5ppm_1	13.82029	12.34493	-7.63768	16.56232	11.77971	-31.29276	50.89565	43.67536	-12.44347	4.333344	-63.47826	-3.556522	12.16522	13.07246	-24.96232	-0.356522	0.031891	24.2029	15.07246	12.34493	-5.573914	12.37681	8.228985	-26.54493	69.35362	64.92464	-27.51305
5ppm_2	15.88985	13.08116	-7.431885	16.78841	11.82319	-30.48695	50.28986	42.20001	-13.23769	3.617401	-63.37102	-5.124638	13.08116	13.06957	-24.17971	-1.240585	-0.356522	19.1739	12.52754	10.11305	-3.901451	10.13334	6.736233	-22.59131	58.07536	54.84058	-25.10145
5ppm_3	15.26087	13.33624	-6.82608	19.3913	14.02029	-31.35362	42.28115	35.64058	-10.70435	3.46376	-57.15942	-6.484058	12.6058	13.18551	-21.46378	-1.110153	0.014496	19.47246	14.66666	11.73333	-5.046379	15.18841	9.721737	-27.0029	60.07536	55.40001	-23.76522
5ppm_4	15.36522	13.11594	-5.794205	19.55942	13.47826	-30.84927	37.53622	29.14203	-9.626091	3.460876	-61.75362	-4.866665	16.84638	17.06957	-27.95073	-1.634781	-0.318848	24	19.65508	15.8087	-6.617393	19.24348	12.8	-32.63188	66.96522	59.55652	-24.8058
5ppm_5	16.0174	13.33623	-8.086952	18.09275	13.14203	-32.41159	50.41739	42.62029	-13.94782	5.055069	-66.5913	-4.492752	12.63188	12.90725	-24.22899	0.179718	0.165222	20.31015	14.68116	11.34493	-5.197098	13.57681	8.684059	-28.38551	67.68117	62.93334	-26.48696
2.5ppm_1	11.93913	9.507248	-6.14492	14.27246	10.46667	-26.75652	39.32174	34.84058	-10.33044	3.53334	-33.14783	-2.936234	7.373913	7.089855	-13.29565	-0.197113	0.231888	13.93044	10.47826	8.191299	-2.750725	7.962318	5.29855	-17.85217	43.57681	41.62029	-20.35942
2.5ppm_2	11.08115	9.495651	-3.710144	13.41739	10.12464	-24.82319	34.84058	28.63479	-8.110138	3.620285	-35.68985	-1.924641	7.176811	7.411591	-15	-0.944931	0.028976	14.46378	9.68116	8.281158	-1.559418	8.678261	6.411598	-19.24348	52.6	48.57972	-21.7913
2.5ppm_3	7.234779	6.562317	-3.788406	12.1913	9.626083	-22.87827	28.6087	24.96522	-8.121742	4.188416	-43.26376	-2.623188	8.762321	8.29565	-17.52464	-0.915939	0.353622	15.24638	10.51595	8.408699	-3.142029	11.06087	7.544926	-22.33913	50.34783	46.55072	-20.82319
2.5ppm_4	7.260872	5.91304	-3.684059	10.56812	7.626083	-19.15363	29.00869	24.87537	-8.008698	3.023193	-40.45216	-2.217388	7.075363	6.640579	-14	-0.663773	0.542038	13.45218	8.788406	6.881157	-2.675362	8.684059	6.266663	-18.16812	48.30145	44.94202	-20.76523
2.5ppm_5	8.298551	6.85024	-3.750725	11.50435	8.747823	-21.05797	28.3256	24.34396	-7.553625	4.2058	-46.61835	-3.418357	9.543963	9.419321	-18.31692	-0.429952	0.423187	15.93527	10.22705	8.140096	-2.924637	9.276328	6.419322	-19.65411	43.31497	40.50628	-18.95846
1ppm_1	3.26667	2.605797	-1.823189	4.617392	2.982605	-11.22609	14.34493	12.64928	-4.602898	0.692764	-8.060883	-0.371017	1.486958	1.460869	-1.863754	0.10144	0.411606	4.956528	3.568123	2.321739	-0.173912	2.605797	1.704346	-6.884056	15.36811	15.62029	-9.875366
1ppm_2	2.997101	2.982605	-1.765213	5.486958	3.466667	-12.81739	12.82029	11.86667	-5.36232	-0.017395	-9.985504	0.460869	1.333332	0.640579	-2.86087	-0.507233	-1.040573	3.530426	2.092758	1.310143	-0.823189	1.211596	0.333332	-5.278259	13.27536	12.78551	-11.53913
1ppm_3	3.443481	3.185501	-1.991302	5.055071	3.515945	-12.67536	13.44927	12.97971	-5.971016	-0.182602	-7.440582	-0.513042	1.449276	1.289856	-1.913055	-1.185501	-0.072464	3.101456	1.834785	1.828979	-0.18261	2.304348	0.77681	-4.301445	19.25797	18.13913	-14.13333
1ppm_4	4.040581	4.475365	-2.298553	5.057972	3.742035	-12.91594	15.36232	14.51594	-4.753624	1.368118	-7.828979	1.156525	1.376812	0.962318	-0.715942	-0.434784	0.255066	4.907242	2.681152	2.49855	0.394203	2.81739	1.634785	-7.872467	18.64928	18	-12.1971
1ppm_5	3.73333	3.269562	-1.901443	5.055073	3.866669	-13.01159	13.89275	12.67826	-5.452171	0	-9.478256	0.426086	1.13913	0.921738	-2.046371	-0.68985	-0.718842	4.962326	2.295654	1.918846	0.881157	1.362318	0.730434	-5.333336	12.35362	12.05797	-10.71304
0.75ppm_1	1.744926	1.565216	-0.536232	3.246378	3.313042	-8.826088	10.75072	9.173912	-3.176811	-0.217392	-6.950714	-1.437679	1.110146	0.542027	-1.785507	-2.211594	-1.104355	5.371017	3.234779	1.278259	0.269569	0.837681	0.52174	-3.979713	12.26087	12.42609	-8.698555
0.75ppm_2	2.324638	1.173912	-2.295647	4.463768	3.127533	-10.27246	10.23188	8.962318	-4.411598	-0.078262	-9.46376	-2.434776	1.049278	1.118835	-2.594208	-1.385513	-0.927536	3.040573	1.289856	0.602898	-1.246376	1.121738	0.086956	-5.41449	9.666668	9.655075	-8.985504
0.75ppm_3	2.939133	3.686958	-1.997101	2.96232	3.292751	-8.878265	10.08985	10.23189	-4.423187	-0.457977	-7.443481	-0.782608	0.910145	0.643478	-1.05217	-0.092758	-0.165222	2.344925	1.469566	0.991302	0.753624	0.985506	0.773914	-2.756516	10.73043	11.56232	-9.075363
0.75ppm_4	3.040581	3.066666	-1.547821	3.515942	2.86377	-10.06087	10.35362	9.513046	-4.04348	1.344925	-8.226074	-0.220287	0.2029	0.034782	-0.460876	-0.344925	0.127548	3.286957	2.397102	0.953621	-1	0.965216	-0.095654	-3.599998	10.4087	10.51305	-8.823189
0.75ppm_5	1.513046	1.333336	-0.872467	2.70145	2.284058	-5.910141	10.12174	8.382614	-3.133331	3.455063	-7.486954	1.88406	0.707249	1.017391	-0.611588	1.313049	0.199997	3.678268	2.014496	1.753624	0.226089	0.582609	-0.214493	-4.228981	12.34203	11.94783	-9.347824
0.5ppm_1	0.727539	1.547821	0.020287	2.205797	1.736229	-5.889854	5.898552	5.559418	-1.884056	0.44928	-3.994217	0.075359	0.182606	-0.040577	-1.753616	0.113037	-1.214493	4.794205	1.626083	2.27536	0.907249	0.872465	1.069565	-3.910141	6.324638	6.666664	-4.834778
0.5ppm_2	1.252174	0.994202	-0.298546	2.2029	1.5942	-5.350723	4.434784	4.342033	-2.040581	0.307236	-3.313049	-0.692757	0.689854	-0.228985	-1.197098	0.640579	-1.113052	1.376816	1.014488	0.052177	-1.055077	0.797102	-0.420288	-2.826088	8.15942	7.455078	-6.701447
0.5ppm_3	0.446373	0.371017	0.057968	1.559422	1.25507	-5.066666	4.689857	4.255074	-2.191299	-0.640579	-4.930435	-1.089855	0.347824	0.014492	-0.982605	-1.547821	-0.359421	2.08696	-0.037682	0.307243	0.469566	0.315943	0.307243	-1.573914	4.52174	4.959419	-4.797096
0.5ppm_4	1.495651	0.513039	-1.191307	1.304348	1.808697	-4.744926	6.420288	5.773911	-3.043472	0.385513	-4.513046	-0.54493	0.037682	0.266666	-1.663757	-0.289856	-1.524628	1.771011	1.295654	1.078262	-0.713043	0.113043	0.034782	-2.208694	7.420292	6.426086	-6.017387
0.5ppm_5	0.655075	0.762321	-1.426086	2.55942	1.672462	-6.863762	4.371017	3.886948	-1.452171	0.634796	-4.889847	0.034782	-0.359421	-0.652176	-0.46666	-0.979706	-1.8116	1.446381	0.397102	0.046379	0.055069	0.214493	-0.18261	-3.475357	7.652176	6.884056	-5.185516
0.25ppm_1	0.394203	0.315948	-1.057968	0.81739	0.846375	-2.756523	2.771019	2.426094	-0.391304	-0.118851	-1.953629	0.304348	0.678261	0.243481	-0.217392	0.113037	-0.579712	2.101456	0.892761	0.936234	-0.510147	0.915941	0.492756	-0.939133	2.971016	2.90435	-1.098557
0.25ppm_2	-0.171013	0.040581	-0.652176	1.521736	0.585503	-3.086952	2.263763	1.765213	-1.27536	-0.098557	-2.626083	-1.255074	-0.257973	-0.075363	-1.321732	-0.594208	-0.408691	-0.069565	0.049271	-0.002899	-0.930435	0.489855	-0.246376	-2.652168	3.866669	3.927536	-2.411591
0.25ppm_3	-0.208694	-0.591309	-1.124641	0.446377	0.440582	-3.591309	3.142029	3.284058	-2.185501	0.31015	-3.165222	-1.394203	-0.353622	-0.382607	-2.249268	-0.86377	-1.301453	-0.70726	0.037682	-0.124641	-0.814491	0.046377	-0.50145	-2.269569	2.620289	3.49855	-4.614494
0.25ppm_4	0.588409	0.310143	-1.605797	0.13913	0.023193	-2.794197	3.055069	2.243477	-1.336227	0.234772	-2.565216	-0.904346	-0.571014	-0.02029	-0.747818	-0.800003	0.301453	0.03479	0.750725	0.385513	-0.86377	0.252172	0.197105	-1.214493	2.281162	1.747826	-3.034775
0.25ppm_5	0.640579	0.191307	-1.507248	0.910145	1.234779	-3.675362	2.553619	2.159416	-0.918839	-0.486954	-2.481155	-0.762321	-0.713043	-0.568115	-1.536224	-0.405792	-0.747833	1.814499	0.356522	0.18261	-0.834785	0.724638	0.460869	-0.611588	2.837681	3.437683	-3.855072
Control_1	-0.324638	0.063766	-0.930435	-0.188406	0.356522	-0.031883	0.617386	-0.466667	-0.298553	0.008698	0.420303	0.492756	0.011593	0.278259	-0.791306	-0.237671	-0.321732	-2.011597	-0.173912	-0.055069	-2.23188	-0.049276	0.101448	-0.886955	0.434784	-0.342033	-0.382614
Control_2	-0.347824	-0.86377	0.5942	-0.017391	-0.289856	0.034782	-0.553627	0.402901	0.559425	-0.121735	0.057968	-0.77681	-0.310146	-0.34203	-0.614487	-1.568115	-0.486954	-1.191299	-0.933334	-0.240578	0.669563	-0.243479	-0.330433	0.397102	-0.869564	-0.652176	0.591309
Control_3	-1.014488	-0.686958	-1.284058	0.107246	-0.562325	-0.884056	-0.113045	-1.046379	0.431885	-1.944916	-0.800003	-0.678261	0.257973	0.165215	-0.455063	-1.315933	-0.452179	-1.234787	-1.055077	-0.402901	-0.63768	0.124638	-0.211597	-0.478256	-0.078259	-0.918839	0.034775
Control_4	0.127533	0.44928	1.310143	-0.310144	-0.321739	0.620285	-0.08696	0.292755	0.556526	-0.292755	0.220291	-0.431885	-0.371014	-0.220291	-0.669571	-1.014496	0.278259	-0.281158	0.730438	0.084061	0.927536	-0.107246	0.115944	-0.031891	-0.124638	0.226089	0.831886
Control_5	0.13623	0.536232	0.037682	-0.07826	0.292755	0.173912	0.478256	0.915939	0.539131	0.437683	0.08696	-0.971016	-0.565218	-0.29855	0.257965	-0.649277	-0.002899	-0.205795	-0.084061	0.423187	-0.82029	-0.379711	0.376812	0.49276	-0.15942	-0.031883	0.437683

	R19	G19	B19	R20	G20	B20	R21	G21	B21	R22	G22	B22	R23	G23	B23	R24	G24	B24	R25	G25	B25	R26	G26	B26	R27	G27	B27
20ppm_1	4.849274	-100.7652	-9.707247	45.76522	45.35652	-45.05798	-1.356537	0.698563	52.02319	44.5913	36.68116	-11.43478	40.91884	16.11305	-42.24348	107.6522	90.0087	-40.55651	2.942032	-58.54493	-2.510143	14.42319	12.74203	-26.38261	-0.791306	1.185501	26.82899
20ppm_2	4.964497	-91.87174	-8.93116	41.95217	39.53985	-30.89347	-1.19783	0.580437	46.58333	42.90652	36.22753	-11.24058	39.70145	15.69058	-38.41377	100.7746	83.90362	-34.00724	3.591301	-58.83478	-1.964491	14.5029	12.2558	-12.52681	-0.347824	0.871014	30.86667
20ppm_3	5.092758	-88.13623	-10.62029	40.75652	37.74493	-30.30434	-1.823196	0.12175	44.85507	41.98841	36.11594	-11.31015	39.78841	15.83769	-38.50435	102.3217	84.69855	-32.88116	4.321732	-65.73913	-4.29565	21.23768	18.66956	-15.3913	-1.08696	0.437683	35.61739
20ppm_4	4.800003	-97.83188	-6.791304	44.0145	42.63188	-33.1739	-0.762314	0.881165	51.56812	44.74783	38.15652	-10.68406	41.1884	16.88116	-38.35652	103.9478	84.2116	-33.44927	3.747818	-55.87537	-0.02029	9.38261	7.852177	-10.95363	0.13623	1.281158	28.25217
20ppm_5	4.805801	-89.48116	-9.295652	40.62029	37.4	-28.21449	-1.081161	0.736237	44.13912	41.29565	34.42029	-9.81739	39.86957	15.56812	-36.42899	100.571	84.33913	-32.80579	2.823181	-58.11884	-2.965214	16.26667	13.20869	-11.66666	-0.817383	0.646378	34.70145
15ppm_1	5.382599	-93.04929	-7.176811	35.66087	33.31305	-30.26087	-1.530441	0.063782	48.96232	42.94783	35.54493	-11.71884	37.6029	14.33333	-39.2	92.91594	80.97391	-35.9971	3.084061	-52.75362	-0.84058	8.684059	7.147827	-11.47826	-0.05217	0.115936	23.55363
15ppm_2	5.25798	-94.68116	-7.45797	37.64058	35.17102	-28.99131	-0.91304	0.942032	47.55362	42.97102	33.98261	-9.94783	37.36232	13.83768	-35.22029	90.17682	78.64928	-31.59421	3.298553	-56.2174	-1.608696	8.489853	6.788406	-7.127541	-0.217392	0.968109	24.69276
15ppm_3	5.350723	-97.26378	-9.188406	42.62029	41.37681	-33.11304	-0.924637	-0.402893	50.03189	43.31594	35.69276	-10.59131	38.0029	14.18261	-36.69565	98.54784	84.45508	-32.61739	3.405792	-59.94783	-1.423189	8.852173	6.785507	-9.863762	-0.771011	0.118851	23.37682
15ppm_4	5.089859	-97.37101	-7.869566	39.71014	37.51594	-33.07826	-0.834778	0.695648	48.09856	42.70145	34.64348	-11.79131	38.42899	14.27536	-38.55363	98.00289	83.55653	-36.24638	2.631882	-54.26666	-1.362318	8.356522	6.463768	-11.6145	0.597107	0.898544	20.31014
15ppm_5	5.023193	-91.64928	-7.910145	36.66087	34.77681	-31.63479	-0.27536	0.617386	48.28986	41.68985	33.46666	-12.3913	35.56522	14.0058	-39.50435	92.69566	80.35653	-38.5826	3.86377	-50.94493	0.12174	7.246376	5.568115	-12.76811	0.849289	0.953613	24.12174
9ppm_1	6.568115	-72.32753	-3.423191	15.84928	13.70145	-9.620285	-0.199997	1.208694	31.34493	23.78841	17.81739	-0.63768	27.51014	13.19131	-32.28406	88.5971	80.67246	-28.21449	4.234787	-43.02028	0.315941	6.982609	4.434784	-2.176819	0.678268	1.620285	23.57391
9ppm_2	5.220276	-63.8029	-2.70435	12.44638	10.02609	-9.391304	-0.197098	0.443481	28.2116	24.48406	19.83479	-2.86087	30.31594	13.56811	-34.44058	84.23479	75.55362	-30.06377	2.60289	-30.77391	1.353622	3.915943	2.295654	-1.756516	0.443481	0.171005	20.96811
9ppm_3	5.315948	-69.14203	-2.962318	16.2029	14.42029	-10.30434	-0.011597	0.437668	30.31885	24.81449	18.63478	-1.034782	29.83478	13.90725	-33.17101	80.77101	72.71594	-33.36811	3.431885	-36.42609	0.649277	7.530434	5.489853	-2.185501	-0.034775	0.434784	21.05217
9ppm_4	6.930435	-73.32463	-3.075361	18.08406	16.51594	-11.33913	-0.400009	0.921753	35.44927	29.10725	23.29855	-1.747826	33.37391	14.92753	-34.57971	83.53624	76.05217	-26.19999	4.107239	-37.68407	1.133335	5.205795	4.313042	-1.802895	-0.069565	1.098541	20.95072
9ppm_5	6.292755	-74.77392	-4.90435	19.56812	17.36812	-13.87246	-0.44928	0.942017	33.92464	31.44927	24.37392	-2.715942	33.38841	14.86087	-35.3971	85.91305	77.49856	-26.72464	4.385498	-39.0029	0.402899	5.666664	3.602898	-1.979706	0.44928	1.028992	16.76811
5ppm_1	3.32753	-38.29565	0.205797	3.455074	2.90435	0.199997	-1.023178	0.50145	19.42029	9.710144	7.573914	1.289856	11.48986	6.652172	-21.97102	45.35652	43.87246	-24.55363	1.10144	-15.67537	0.466667	0.486958	0.727539	0.046371	-0.539124	0.452179	8.22319
5ppm_2	2.834778	-39.58551	-0.631886	3.220287	1.904346	2.44928	-1.956512	-0.576813	15.13334	6.901451	5.205795	2.098549	7.046377	3.399998	-13.93333	31.07246	30.06667	-17.53333	0.197113	-13.3913	-0.536232	1.142029	0.504349	1.391312	-0.805801	-0.269562	8.388412
5ppm_3	2.191299	-37.75072	-1.098549	5.417389	3.457973	1.742035	-1.599991	0.191299	17.91014	11.29565	8.260872	1.910149	15.9913	8.272465	-21.92464	51.86667	48.86957	-20.50434	0.686951	-18.1913	0.408695	1.791306	0.921738	0.486969	-1.168106	0.066666	12.31015
5ppm_4	3.127533	-44.75073	-0.773912	6.513046	4.944927	-1.156525	-1.86377	-0.524643	23.25797	17.03478	13.25507	0.823189	19.88696	10.22609	-26.01159	54.73623	49.98261	-20.91595	0.684052	-19.28406	1.18261	0.791302	0.162319	1.220291	-0.855072	-0.707245	10.73334
5ppm_5	3.437683	-37.39711	-0.162319	3.684059	2.373913	0.426086	-0.327545	-0.359421	16.81159	9.631882	6.753624	0.886955	11.86087	6.892754	-22.06667	44.33044	42.53333	-21.61739	1.336227	-15.75943	0.672464	1.092752	0.982609	-0.484062	-0.211594	-0.165207	8.255074
2.5ppm_1	1.281158	-13.12174	0.472462	1.124638	0.475361	2.199997	-0.336227	0.797104	8.13913	4.124641	2.115944	2.744934	4.437681	1.394199	-6.040581	26.1971	25.37391	-14.31594	0.028976	-5.278259	-0.82029	0.553623	0.359421	1.04348	-0.034775	-0.298553	5.5942
2.5ppm_2	1.791306	-14.67825	-0.481159	2.043476	1.573914	2.730423	-0.17392	0.208694	12.29276	6.373917	4.504349	3.655075	6.350725	3.518841	-10.68986	33.64348	31.66956	-16.99131	0.269562	-7.875351	0.156521	0.750725	0.284058	1.037682	-0.698547	-0.379715	6.623192
2.5ppm_3	2.188416	-20.1884	-0.17971	2.97681	1.098553	2.811584	-1.014496	0.39711	13.52753	7.23188	5.814491	2.582611	7.852177	4.805794	-13.97971	36.89855	34.91015	-17.44928	0.872467	-10.15073	-1.139132	1.281158	0.423187	0.86377	-0.600006	-0.014496	6.76812
2.5ppm_4	1.988403	-19.27536	-0.327538	1.718842	0.875362	3.657974	-0.533325	0.304352	11.18841	5.689857	3.788406	1.298553	6.788406	3.747826	-11.21449	34.52464	32.79421	-17.25507	0.040588	-9.002899	-0.072464	0.350727	0.133331	1.295654	0.037689	0.94783	7.27536
2.5ppm_5	3.037684	-27.95556	-0.474397	2.675363	1.065702	3.473429	-0.625122	0.386475	12.98744	6.150726	4.636716	1.91981	6.170049	3.475361	-10.23962	28.37585	27.17971	-14.72174	1.232854	-13.05121	-0.436716	0.769083	0.154588	1.457972	-0.088888	0.360387	7.308215
1ppm_1	0.608688	-3.313049	-0.486958	0.759418	0.101448	1.979706	0.191315	0.518845	4.666672	1.50724	1.153625	2.22319	1.324635	0.515942	0.028984	6.11594	6.379707	-4.205803	0.756516	-1.191315	-0.715942	0.101448	-0.130436	-0.020287	-0.330429	-0.292755	1.5942
1ppm_2	-0.530441	-3.266663	0.205797	0.133331	-0.397102	0.313049	-0.849274	-0.886948	2.547829	0.168121	-0.115936	0.971016	0.736231	0.078262	-0.866661	5.515942	5.675369	-6.286949	-0.588409	-2.846375	0.44058	-0.428986	-0.402897	-0.515945	-0.773911	-0.579697	1.394203
1ppm_3	-0.794205	-2.773911	0.127533	-0.02319	0	1.162323	-1.985504	0.666672	1.820297	0.881157	0.826088	1.014496	0.655073	0.13913	-0.988403	8.88406	8.408691	-6.982605	-0.652176	-1.979706	-0.289852	-0.907249	-0.371014	-0.765213	-1.072449	-0.084061	2.440575
1ppm_4	-0.684067	-2.510147	0.65797	-0.095654	-0.101448	1.985519	-0.336227	-0.855072	3.698555	0.855072	1.559418	1.063766	0.863768	0.402901	-1.646378	9.014492	9.127541	-7.298553	-0.492752	-1.849274	1.10145	-0.243477	-0.420288	0.518845	-0.05217	-0.03479	2.443481
1ppm_5	-0.13623	-4.469559	0.643476	0.518837	-0.191303	0.710144	-0.55072	-0.828995	3.886955	0.747826	0.246376	0.55072	0.715942	0.878262	-2.628983	4.005795	3.942032	-4.663773	-0.834778	-2.284058	0.069565	-0.037682	-0.301449	-1.165215	-0.962326	-1.133331	0.988403
0.75ppm_1	-0.286957	-2.344925	-0.942028	-0.350727	0.081161	1.347824	-1.199997	-1.455063	2.649269	0.344925	-0.255074	0.898552	0.208694	0.559422	0.298553	2.376812	2.260872	-2.71595	-0.504333	-1.333344	-0.460873	0.11594	-0.449272	0.060867	-1.405807	-0.968109	1.539139
0.75ppm_2	-0.113052	-6.020294	-0.672466	0.060871	0.086956	0.104355	-0.942032	-0.973907	2.41449	1.176811	0.704346	1.08696	0.855074	0.130436	-2.066666	3.095654	2.933334	-4.272461	0.342026	-1.982605	-0.269566	0.034782	-0.130432	0.017395	-2.023178	-0.313034	1.318832
0.75ppm_3	0.031891	-2.263763	-0.97971	0.388405	-0.194202	0.272461	-0.408691	-0.313049	0.753624	0.368118	0.118843	0.301453	0.481159	0.672462	-0.663773	4.489853	4.771011	-3.765213	-0.515945	-1.466675	-0.626085	0.284058	-0.06377	0.159416	-0.828979	-1.063766	-0.072464
0.75ppm_4	-0.379715	-2.53334	-0.724636	-0.02319	0.075363	1.527542	0.417389	-0.571014	1.91304	0.376808	0.498558	-0.060875	0.96232	0.533333	-2.098557	4.507244	4.127533	-3.704346	-1.005798	-1.846375	-0.968117	-0.307247	-0.515942	0.623184	-0.202896	-0.773911	0.692757
0.75ppm_5	1.602905	-2.3797	1.031887	0.869564	0.594204	2.020294	0.77681	0.243469	3.921738	0.275368	1.107246	1.402893	1.802898	0.936234	-0.985504	7.11594	6.953621	-3.657967	1.205795	-1.657974	-0.133333	-0.191307	-0.04348	0.910141	0.121735	-0.08696	1.660873
0.5ppm_1	-0.327545	-0.991302	-0.420288	0.133335	0.005798	-0.489853	-0.657974	-0.678268	2.011597	-0.339127	0.686958	2.214493	0.460869	0.611595	-0.431885	2.852173	2.808693	-2.944931	-0.040573	-0.762329	-1.165216	-0.371014	-0.481159	-0.686951	-0.49855	-0.820282	1.292755
0.5ppm_2	0.078262	-1.559418	0.756523	-0.11594	-0.860867	0.582596	0.342041	-0.655075	-0.13913	0.066666	-0.284058	1.797096	0.539131	-0.289852	-1.463768	3.321739	3.347824	-2.942032	0.301453	-1.295654	-0.153624	-0.434784	-0.733334	-0.060867	0.257965	-0.994202	-0.208702
0.5ppm_3	-1.330429	-2.820282	0.492756	-0.205795	-0.417389	-0.420288	-2.028976	-0.771011	1.892754	-0.072464	0.072464	1.18261	-0.055073	-0.599998	-1.77681	1.371014	1.736229	-1.565208	-0.791306	-1.281158	-0.440578	-0.078262	0.171013	-0.272461	-1.568115	-1.150726	0.133331
0.5ppm_4	-0.878265	-1.199997	-1.217392	-0.475361	0.200001	0.356522	-0.634781	-1.481155	1.721741	0.321739	-0.156525	-0.014488	0.257971	0.081161	-1.304352	2.956524	1.881165	-2.663773	-0.530426	0.089859	-1.388405	-0.284058	0.014492	-0.153625	-1.231888	-1.518845	0.356522
0.5ppm_5	0.023178	-2.400009	-0.52174	-0.072464	-0.078262	1.046387	-1.411591	-2.115936	1.437683	-0.58551	-0.310143	-0.800003	0.350723	-0.220287	-0.788406	4.026089	3.707245	-2.785507	-0.365219	-2.342026	-1.02029	-0.440578	-0.652172	-0.39711	-1.527542	-1.675354	-0.481155
0.25ppm_1	-0.478256	-0.507248	-0.15942	0.313042	0.292751	0.431885	0.281158	-1.089859	1.550728	0.255074	0.27536	0.579712	0	-0.252174	0.646378	0.759418	1.165215	-1.313049	-0.049271	-0.936234	-0.107246	0.002899	0.066666	0.295654	0.805801	-0.286957	0.936234
0.25ppm_2	-0.168121	-1.718842	-1.495655	-0.055073	-0.675362	-0.475357	-0.72464	-0.559418	-1.353622	0.214493	-0.45507	0.669571	0.472464	-0.13913	-1.194206	1.759418	1.179703	-1.515945	-0.301453	-0.808701	-0.930435	0.165215	-0.165218	-1.391312	-1.388412	-1.147827	-1.17971
0.25ppm_3	-0.562317	-1.901459	-0.634785	-0.498554	-0.707245	-0.979706	-1.539124	-2.08696	-0.014488	-0.802902	-1.020287	-0.602905	0.08116	-0.17971	-0.400002	0.524639	0.121742	-0.95652	-0.22319	-1.933334	-0.536232	-0.33913	-0.026085	-0.211594	-1.449265	-2.562317	-1.075363
0.25ppm_4	0.13913	-1.368118	0.078259	-0.608696	-0.38261	0.84639	-1.13913	-0.246368	-1.089851	-0.118843	-0.002899	-0.069565	-0.637682	-0.82029	-1.078262	0.95652	0.249275	-0.707245	-0.208694	-1.573914	-0.327536	-0.417393	-0.689857	-0.321739	-1.22319	0.168121	-1.939133
0.25ppm_5	-0.782608	-1.936234	-0.173912	-0.034782	0.208698	-0.597092	-0.333328	-0.411606	0.168114	-0.002899	-0.008698	-0.608696	0.014494	0.028984	-0.13913	0.875362	1.040581	-1.744934	-0.997101	-1.185501	-0.617392	-0.707245	-0.63768	-0.655067	0.553619	-0.394211	-1.773911
Control_1	0.281158	0.762329	-0.913044	-0.45797	0.47826	-0.849274	0.394196	-0.026077	-0.431885	-0.069565	0.49276	-0.72464	-0.08116	0.527538	-0.339134	0.423187	-0.130432	-0.417389	0.220291	1.092758	-0.547827	-0.278263	0.15942	-0.599991	0.237671	0.182617	-1.371017
Control_2	-0.46666	-0.231873	-0.371016	-0.489853	0.089855	0.017395	-1.057968	0.153625	-0.368111	-0.408691	0.153618	0.504341	-0.162319	-0.211594	-0.037682	-0.359421	-0.052177	-0.03479	-0.791306	-0.008698	0.092754	-0.475361	0.292751	-0.095642	-0.944931	0.408691	-1.808701
Control_3	-1.530441	-0.739136	0.304348	-0.263771	0.005795	-0.527527	-1.634781	-0.281174	-2.00869	-0.336227	-0.188408	-1.292755	-0.13913	-0.11594	-0.379707	-0.417393	-0.994202	-0.055084	-0.74202	-0.652176	-0.211594	-0.217392	-0.620293	-0.782608	-0.814484	-0.220291	-0.576813
Control_4	-0.530441	-0.489853	-0.269566	-0.113045	0.185509	-0.194199	-0.179703	0.057968	-0.356522	0.052177	0.321739	-0.057968	-0.133333	-0.049278	-0.020294	-0.353622	0.205795	0.484055	-0.808701	-0.107239	-0.301449	0.347824	-0.130436	0.281158	-0.121735	0.205795	-0.660866
Control_5	-0.014481	0.055069	0.153622	-0.156521	0.13623	0.681168	0.469559	0.037689	-0.86956	0.449272	0.211594	0.721741	0.040579	0.228985	-0.391304	-0.423191	0.09565	0.342026	0.176819	0.646378	-0.095652	-0.489857	-0.197102	0.049286	-0.037674	0.289856	-1.272476

	R28	G28	B28	R29	G29	B29	R30	G30	B30
20ppm_1	18.36232	11.22319	-5.472458	14.28406	5.18261	-18.71594	21.71884	20.28406	-17.87247
20ppm_2	22.12391	15.68333	-1.595652	13.72391	4.923189	-15.72609	30.52464	27.67681	-16.22609
20ppm_3	21.91305	15.09855	-0.971016	13.75652	4.231884	-17.45217	34.67536	32.07826	-16.93044
20ppm_4	22.09275	15.67536	-1.536232	12.9942	5.249275	-13.7971	34.70435	30.0058	-17.4
20ppm_5	26.76811	20.86087	-1.057968	17.7971	6.495655	-18.0145	33.70435	30.72463	-15.68695
15ppm_1	16.23478	9.255074	-2.156525	10.91014	3.837681	-14.02898	18.49565	17.48116	-14.73624
15ppm_2	18.56812	11.89565	-0.437683	11.68696	4.463768	-11.3913	19.95652	18.60001	-10.66666
15ppm_3	15.27536	8.788406	-0.953621	10.51014	3.510143	-12.51014	18.85218	16.96522	-11.34782
15ppm_4	14.85507	9.028984	-2.918839	10.64638	3.388405	-12.28406	18.89855	16.75072	-13.49855
15ppm_5	15.02029	8.91304	-2.226089	10.57392	3.371014	-14.38261	17.96812	16.22029	-15.00579
9ppm_1	12.15942	7.391304	3.249275	9.942028	4.313042	-12.3913	18.1913	19.24638	-8.553619
9ppm_2	10.25797	8.379715	1.655075	8.507248	3.417389	-11.06957	15.42899	15.86957	-9.666672
9ppm_3	14.82609	10.6087	3.681152	9.171015	3.449276	-10.96522	26.9855	26.51304	-14.86377
9ppm_4	11.08985	7.843483	3.765213	10.14493	4.301449	-11.21159	15.96522	16.25217	-8.544922
9ppm_5	11.77971	7.599998	2.828987	9.753622	4.344925	-12.02898	14.15942	14.36232	-7.382607
5ppm_1	4.373917	3.028992	2.985504	2.857971	1.431885	-6.240578	8.426088	8.136234	-6.608696
5ppm_2	3.078262	1.562317	1.289856	2.205797	1.185509	-3.81739	5.434782	4.107243	-5.472458
5ppm_3	4.930435	3.344933	1.965218	4.994204	2.286957	-7.014496	17.04348	16.88696	-8.626083
5ppm_4	5.214493	3.44928	3.04348	3.57971	1.428986	-5.588409	12.54493	12.06377	-7.362328
5ppm_5	3.973915	1.968109	1.014496	2.826086	1.489853	-4.866669	6.88406	6.272465	-7.162315
2.5ppm_1	1.081161	0.698547	1.626091	1.834784	0.527538	-1.881165	6.611595	6.489853	-4.933334
2.5ppm_2	2.460869	1.347824	2.597099	4.098549	2.663769	0.165222	7.037682	5.652176	-4.982613
2.5ppm_3	2.727539	2.469566	2.617393	1.750725	0.886959	-2.098549	6.165218	5.460869	-4.150726
2.5ppm_4	3.121742	1.704346	2.113045	1.968117	0.756523	-3.643478	9.686958	9.113037	-5.843475
2.5ppm_5	2.554591	1.44058	2.307246	1.548793	0.622223	-2.254107	6.176812	5.69082	-3.690821
1ppm_1	0.09565	0.231888	1.359421	0.031883	-0.130432	-0.228981	1.284058	1.510147	-1.365211
1ppm_2	0.072464	0.426086	0.611595	0.200001	-0.069565	-1.202896	1.504345	0.759422	-2.107246
1ppm_3	0.228989	0.495651	0.289856	0.733334	0.414494	-0.289856	3.144928	2.727539	-2.481155
1ppm_4	-0.052177	0.892754	0.437683	0.252172	0.25507	-0.118835	1.82029	2.344925	-1.391304
1ppm_5	0.234787	-0.4058	0.402901	0.060869	-0.434784	-1.156517	1.324638	1.565216	-2.217392
0.75ppm_1	-0.257973	-0.678261	-0.292755	-0.095654	-0.466663	0.617393	0.321739	0.191307	-1.220284
0.75ppm_2	0.031891	-0.41449	0.324638	0.672462	0.171013	-0.159424	0.779711	0.365219	-1.492752
0.75ppm_3	-0.118835	-0.052177	0.020287	0.33913	0.110146	-0.211594	0.672462	0.90435	-1.284058
0.75ppm_4	0.026085	-0.515938	-0.376816	0.408695	-0.344925	-1.344925	1.330433	1.078262	-1.976814
0.75ppm_5	0.747826	0.142029	1.234787	0.623188	-0.130436	-1.368118	1.463768	0.486954	-1.895653
0.5ppm_1	-0.652168	0.110146	0.284058	0.191303	0.626087	-0.066666	0.547829	0.5942	-0.936226
0.5ppm_2	0.301453	-0.515938	-0.220291	0.24058	-0.507244	-0.50145	-0.02319	-0.13913	-1.22319
0.5ppm_3	-0.127533	-0.211594	0.4058	0.472464	-0.492752	-1.342033	0.597099	0.449276	-0.075363
0.5ppm_4	-0.599998	-0.77681	0.034782	-0.031883	-0.45507	-1.055077	0.77681	0.440582	-0.855072
0.5ppm_5	-0.576813	-0.611595	0.336235	-0.226088	0.084057	-0.469559	1.008698	0.434784	-0.168114
0.25ppm_1	-0.020294	-0.327538	0.571014	0.371014	0.162319	0.718842	0.26667	0.234779	-0.037682
0.25ppm_2	-0.446381	-0.884056	0.333328	-0.014494	-0.130432	-0.281158	0.38261	-0.13913	0.086952
0.25ppm_3	-0.695648	-0.533333	-0.614494	-0.231884	-0.70145	-0.515945	-1.460869	-1.49855	-1.805801
0.25ppm_4	-0.339127	0.089859	-0.475357	-0.04348	-0.284058	-0.060867	-0.113045	-0.962318	-1.295654
0.25ppm_5	-0.475357	0.063774	-0.133331	0.747826	0.49855	-0.150719	-0.092754	-0.356522	-0.915939
Control_1	0.101448	0.144928	-0.449272	-0.12174	0.400002	-0.115944	-0.182606	-0.498558	-0.272461
Control_2	0.095657	0.234787	0.710144	0.147827	-0.150726	-0.536232	0.092754	0.481163	-0.011581
Control_3	-0.942032	-0.081154	-0.866661	0.27536	0.005798	-0.107246	-0.278263	-0.307251	-0.579712
Control_4	0.197105	0.107246	0.837685	-0.484056	-0.072464	0.846375	-0.34203	0.026085	1.171021
Control_5	-0.017387	-0.237686	-0.402901	-0.037682	0.585506	0.011597	-0.449274	0.18261	0.356522