Supplementary Material for, “A Field Evaluation of a Single Sampler for Respirable and Inhalable Indium and Dust Measurements at an Indium-Tin Oxide Manufacturing Facility”:

Ta S1. Temperature and Relative Humidity Measurements by Department

Department	Temperature (in °F)			Relative Humidity (in %)		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Administrative	70.3	67.0	73.0	52.5	44.0	65.0
Bond Shop-Planar	73.5	68.0	78.0	54.0	47.0	69.0
Bond Shop-Rotary	73.8	71.0	78.0	59.0	56.0	65.0
Engineering	71.5	70.0	74.0	43.5	40.0	45.0
ITO	84.6	74.0	96.0	46.8	20.0	66.0
Forming	72.0	69.0	73.0	74.5	67.0	80.0
Planar Grinding	69.3	66.0	83.0	69.8	63.0	82.0
QC Lab	75.9	70.0	79.0	57.5	55.0	60.0
R&D	71.7	67.0	75.0	56.7	35.0	82.0
Reclaim	88.7	84.0	95.0	47.6	35.0	57.0
Refinery	83.3	77.0	89.0	40.5	36.0	45.0
Rotary Grinding	70.5	69.0	72.0	59.8	53.0	62.0

TABLE S2. Respirable dust and inhalable dust measurements by sampler type

Sampler	Respirable Dust (µg/m^3)			Inhalable Dust (µg/m^3)		
	N	**GM[A]**	**Min-Max[B]**	**N**	**GM[A]**	**Min-Max[B]**
IOM_d	17	57.0	<27.0 – 430.5	18	121.4	<50.4 – 1617.7
Respirable Cyclone	17	40.7	<13.0 – 378.0	—	—	—
IOM	—	—	—	18	311.8	110.0 – 1694.4

[A]Geometric mean of mass concentrations measurements.

[B]Minimum and maximum values for mass concentration measurements.

— indicates no samples collected. < indicates samples that were below the LOD.

TABLE S3: Comparisons between respirable dust and inhalable dust measurements

Sampler Comparison	Mean Ratio (range)	Mean Difference or Bias in µg (95% CI)	Mean % Difference (range)	Std. of Difference	CCC	Accuracy Coefficient	Precision Coefficient
IOM_d : Respirable Cyclone Respirable Dust (n=17[A])	1.63 (0.49 ─ 4.16)	19.59[B] (4.50 ─ 34.69)	63.1[B] (-50.7 ─ 315.8)	29.35	0.850	0.959	0.887
IOM_d : IOM Inhalable Dust (n=18[A])	0.47 (0.17 ─ 0.95)	-146.5[B] (-190.2—102.72)	-52.8[B] (-83.0 ─ -4.5)	87.9	0.661	0.689	0.959

[A]Indicates sampler comparisons that include imputed values for samples <LOD.

[B]Mean differences that were significant on paired t-test, with $p<0.05$

$$\text{Ratio} = \text{Sampler 1} \div \text{Sampler 2}$$

$$\text{Difference (Bias)} = \frac{1}{\text{N}} \sum \text{Sampler 1} - \text{Sampler 2}$$

$$\%\ \text{Difference} = \left(\frac{1}{N} \sum \frac{\text{Sampler 1} - \text{Sampler 2}}{\text{Sampler 2}} \right) \times 100$$

$$\text{Std of Difference (Precision)} = \text{Standard Deviation of (Sampler 1} - \text{Sampler 2)}$$

TABLE S4. One-way analysis of variance of percent differences in measurements of respirable and inhalable dust by dust concentration, including imputed values for measurements below the LOD.

Sampler Comparison	Mean Percent Difference (95% CI), by Dust Concentration ($\mu g/m^3$)	
	Low[A] ($\leq$ 663	High[A] (> 663)
IOM_d : Respirable Cyclone Respirable Dust (n=10)	72.6 (13.6 ─ 131.6) (n=12)	40.4 (-50.9 ─ 131.7) (n=5)
IOM_d : IOM Inhalable Dust (n=18)	-66.7[B] (-77.2 ─ -56.2) (n=13)	-16.6[B] (-33.5 ─ 0.3) (n=5)

[A]50th percentile of all IOM dust concentration measurements = 663 $\mu g/m^3$

[B]Indicates ANOVA results with $p<0.05$

$$\text{Percent Difference} = \left(\frac{1}{N} \sum \frac{\text{Sampler 1} - \text{Sampler 2}}{\text{Sampler 2}} \right) * 100$$

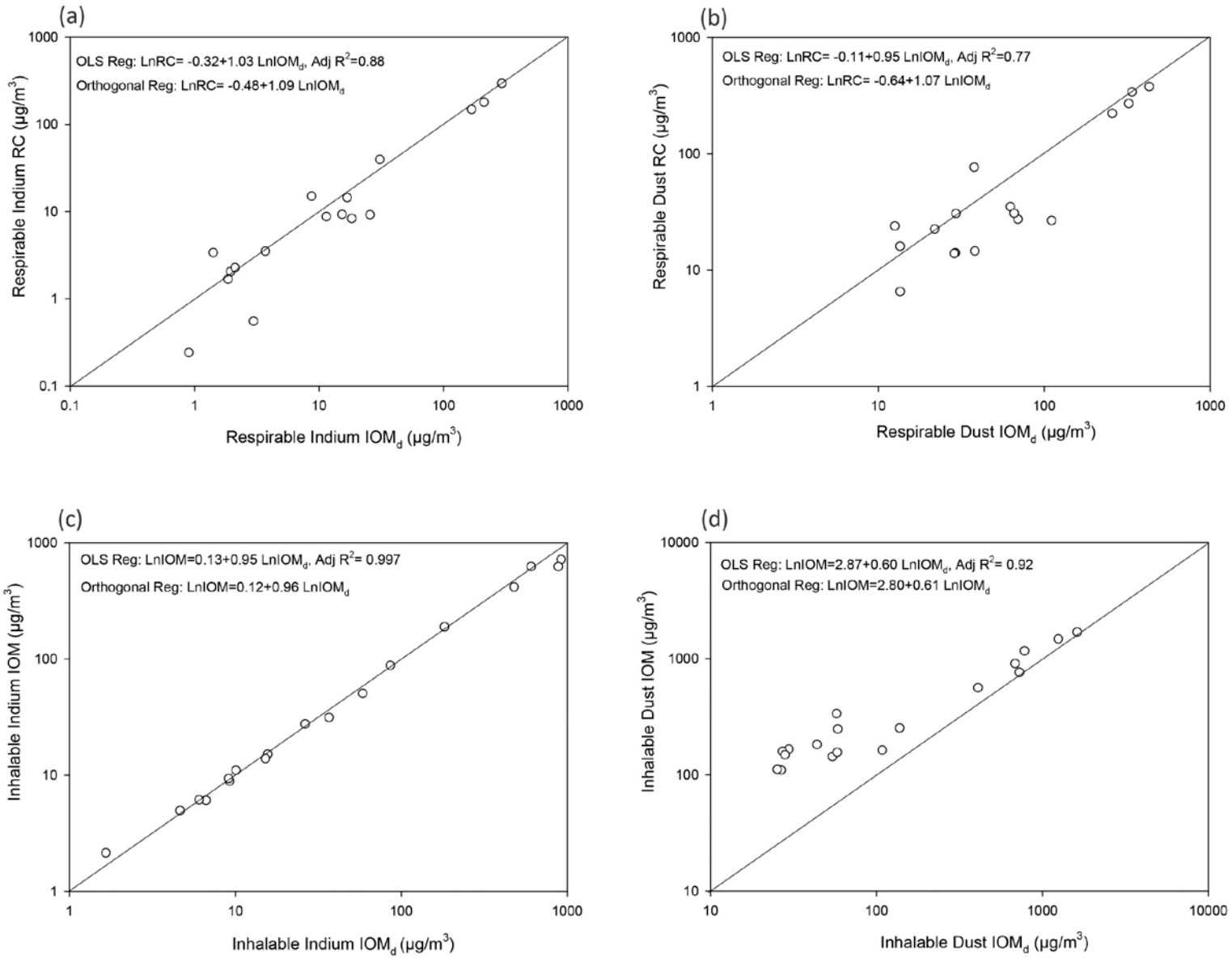

FIGURE S1: Respirable and inhalable indium and dust measurements. Panels (a) and (b): (a) respirable indium and (b) respirable dust measurements collected using the IOM_d compared with respirable cyclone (RC). Panels (c) and (d): (c) inhalable indium (d) and inhalable dust measurements collected using the IOM_d compared with the IOM sampler. Imputed values for dust measurements below the LOD are included in panels (b) and (d).

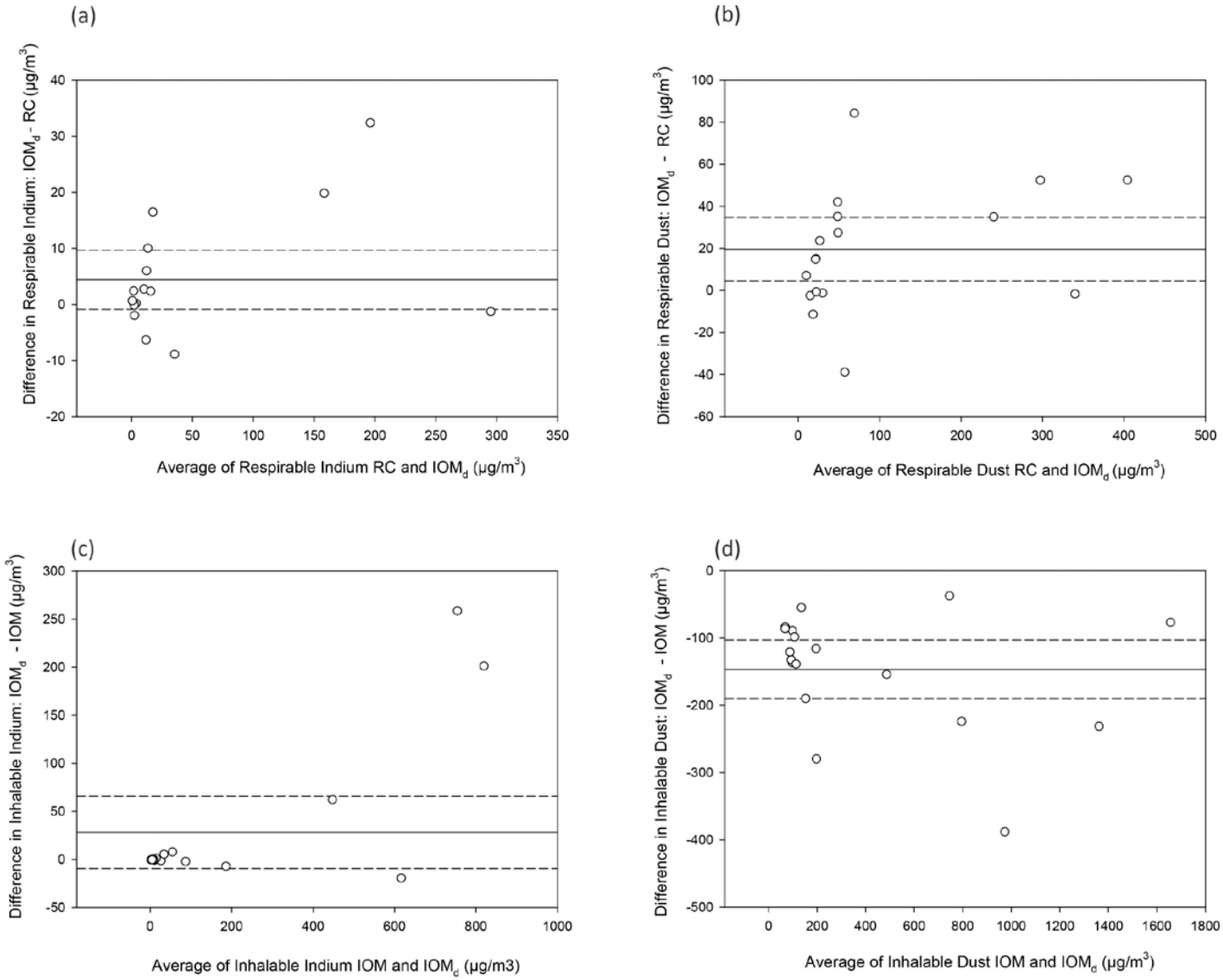

FIGURE S2: Respirable and inhalable sampler bias across different aerosol concentrations. Panels (a) and (b): (a) respirable indium and (b) respirable dust measurements collected using the IOM_d compared with respirable cyclone (RC). Panels (c) and (d): (c) inhalable indium (d) and inhalable dust measurements collected using the IOM_d compared with the IOM sampler. Imputed values for dust measurements below the LOD are included in panels (b) and (d).

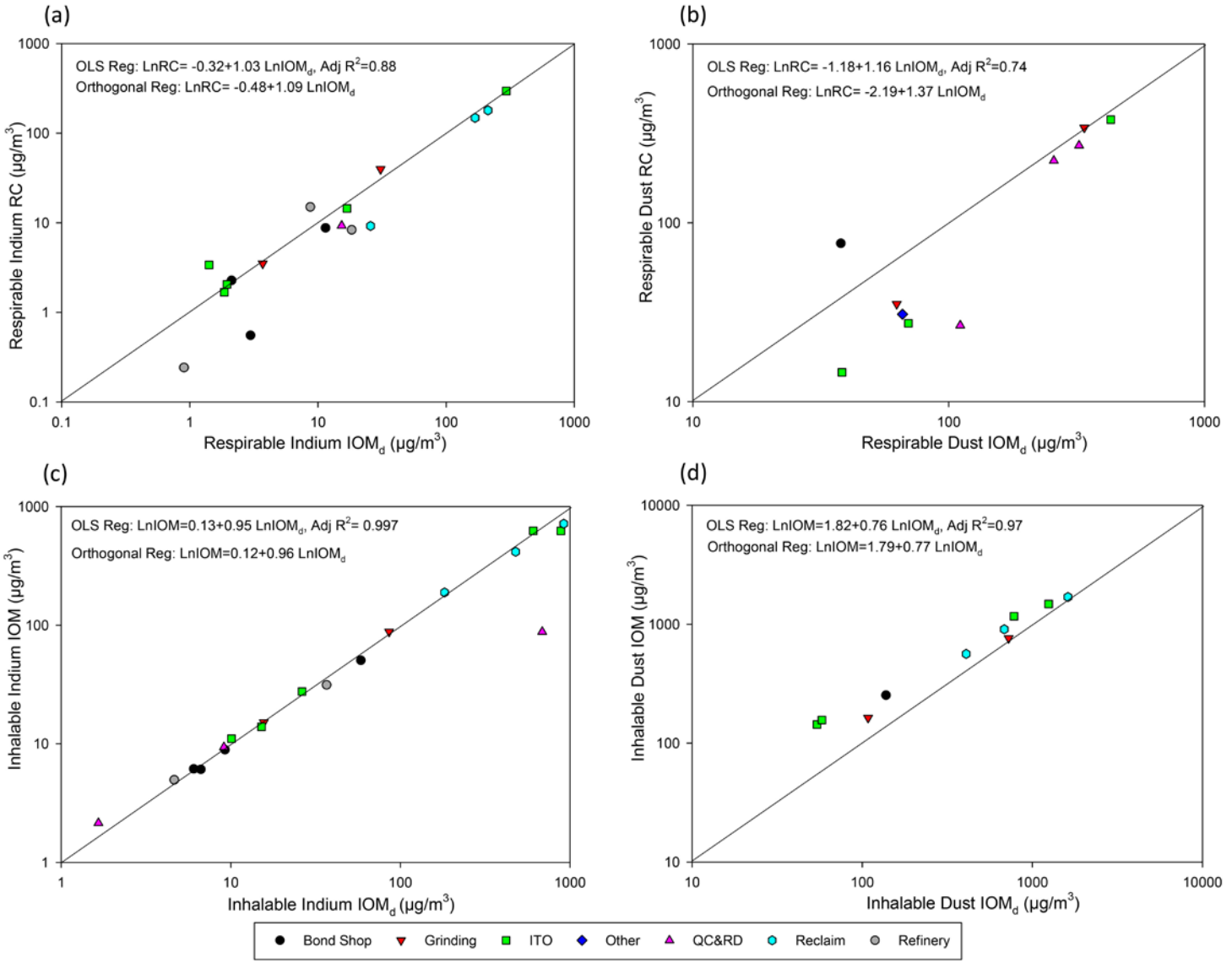

FIGURE S3. Respirable and inhalable indium and dust measurements by department. Panels (a) and (b): (a) respirable indium and (b) respirable dust measurements collected using the IOM_d compared with respirable cyclone (RC). Panels (c) and (d): (c) inhalable indium (d) and inhalable dust measurements collected using the IOM_d compared with the IOM sampler. Dust measurements below the LOD are excluded in panels (b) and (d).

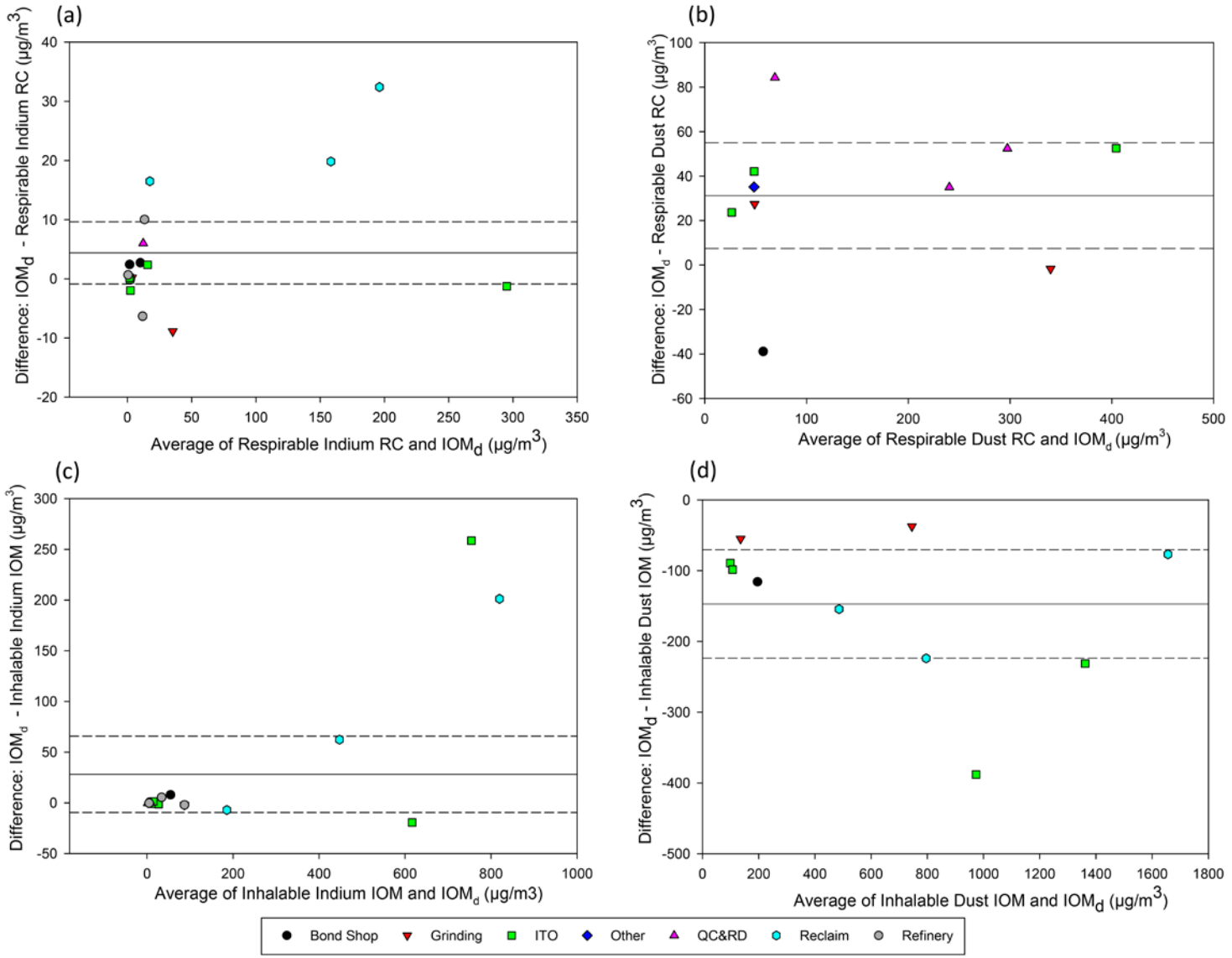

FIGURE S4. Respirable and inhalable sampler bias across different aerosol concentrations, by department. Panels (a) and (b): (a) respirable indium and (b) respirable dust measurements collected using the IOM_d compared with respirable cyclone (RC). Panels (c) and (d): (c) inhalable indium (d) and inhalable dust measurements collected using the IOM_d compared with the IOM sampler. Dust measurements below the LOD are excluded in panels (b) and (d).