

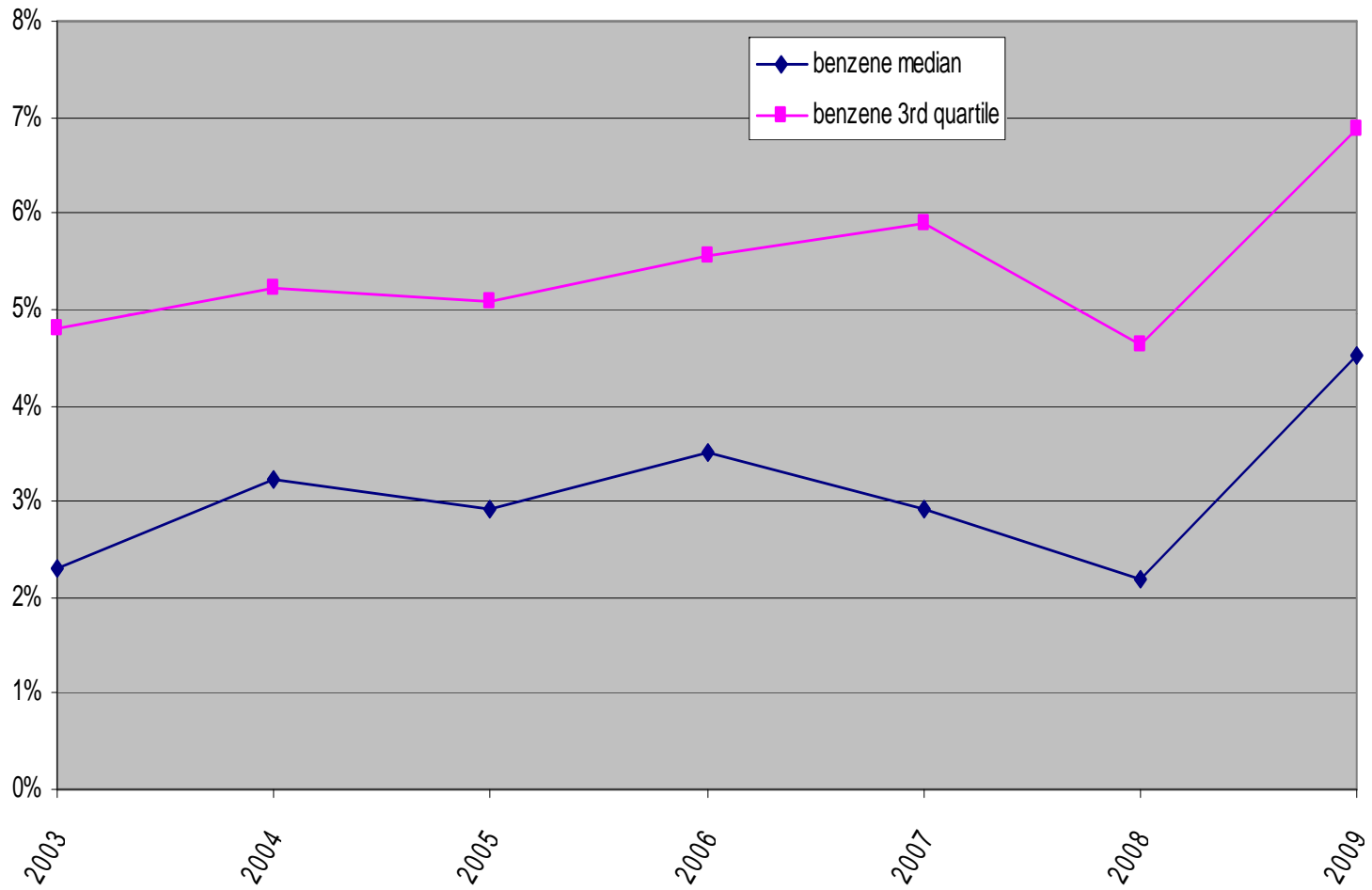
What's a reasonable expectation for acrolein analysis from Summa canisters?

The following data comes mostly from 7 years of co-lo canisters, taken at our East Providence site. Samples are taken every 6th day, using two Xontech 910a samplers on two separate manifolds, on opposite sides of the shelter. For each year, 2003-2009, there are generally 52-58 pairs of measurements.

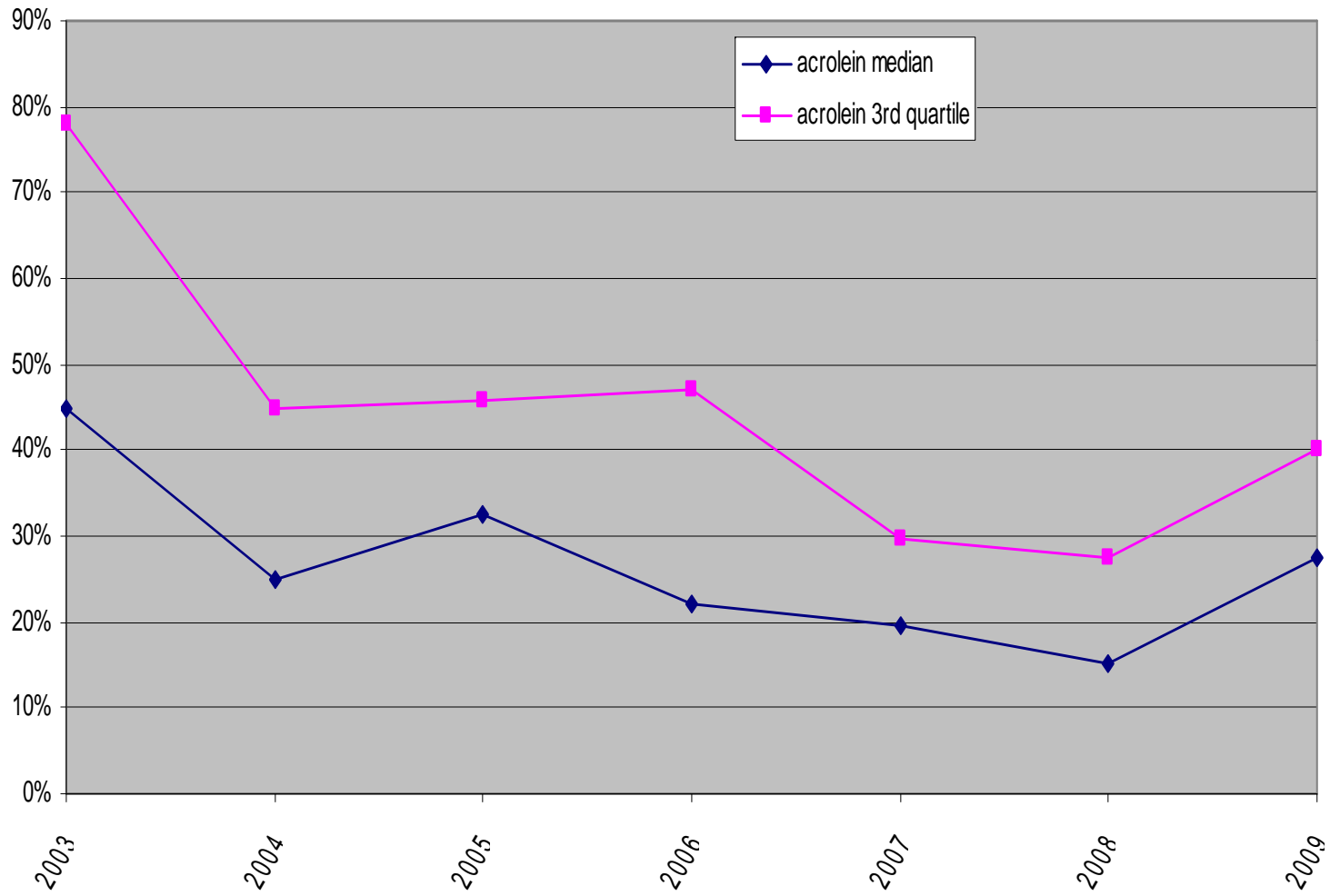
ppb differences between co-lo data pairs, 2003-2009									
	1,3-butadiene		dichloromethane		acrolein		ethylene oxide		
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
	median	3rd quartile	median	3rd quartile	median	3rd quartile	median	3rd quartile	
2003	0.003	0.007	0.004	0.007	0.055	0.114	0.015	0.034	
2004	0.004	0.007	0.003	0.005	0.035	0.069	0.024	0.054	
2005	0.004	0.007	0.003	0.006	0.042	0.076	0.022	0.034	
2006	0.002	0.004	0.004	0.006	0.026	0.046	0.018	0.040	
2007	0.003	0.007	0.003	0.006	0.017	0.029	0.013	0.028	
2008	0.002	0.003	0.002	0.004	0.020	0.055	0.014	0.021	
2009	0.001	0.002	0.003	0.007	0.023	0.035	0.010	0.015	
ambient conc	0.019	0.034	0.072	0.089	0.111	0.143	0.057	0.076	
	butane		trans-2-butene		benzene		toluene		
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
	median	3rd quartile	median	3rd quartile	median	3rd quartile	median	3rd quartile	
2003	0.013	0.026	0.003	0.007	0.006	0.009	0.010	0.019	
2004	0.016	0.028	0.003	0.006	0.006	0.010	0.017	0.024	
2005	0.015	0.034	0.003	0.004	0.005	0.012	0.014	0.027	
2006	0.014	0.026	0.003	0.005	0.006	0.010	0.016	0.035	
2007	0.010	0.016	0.003	0.004	0.005	0.009	0.007	0.013	
2008	0.013	0.031	0.001	0.002	0.004	0.008	0.007	0.019	
2009	0.016	0.037	0.001	0.002	0.007	0.012	0.015	0.030	
ambient conc	0.531	0.990	0.017	0.037	0.173	0.247	0.316	0.513	

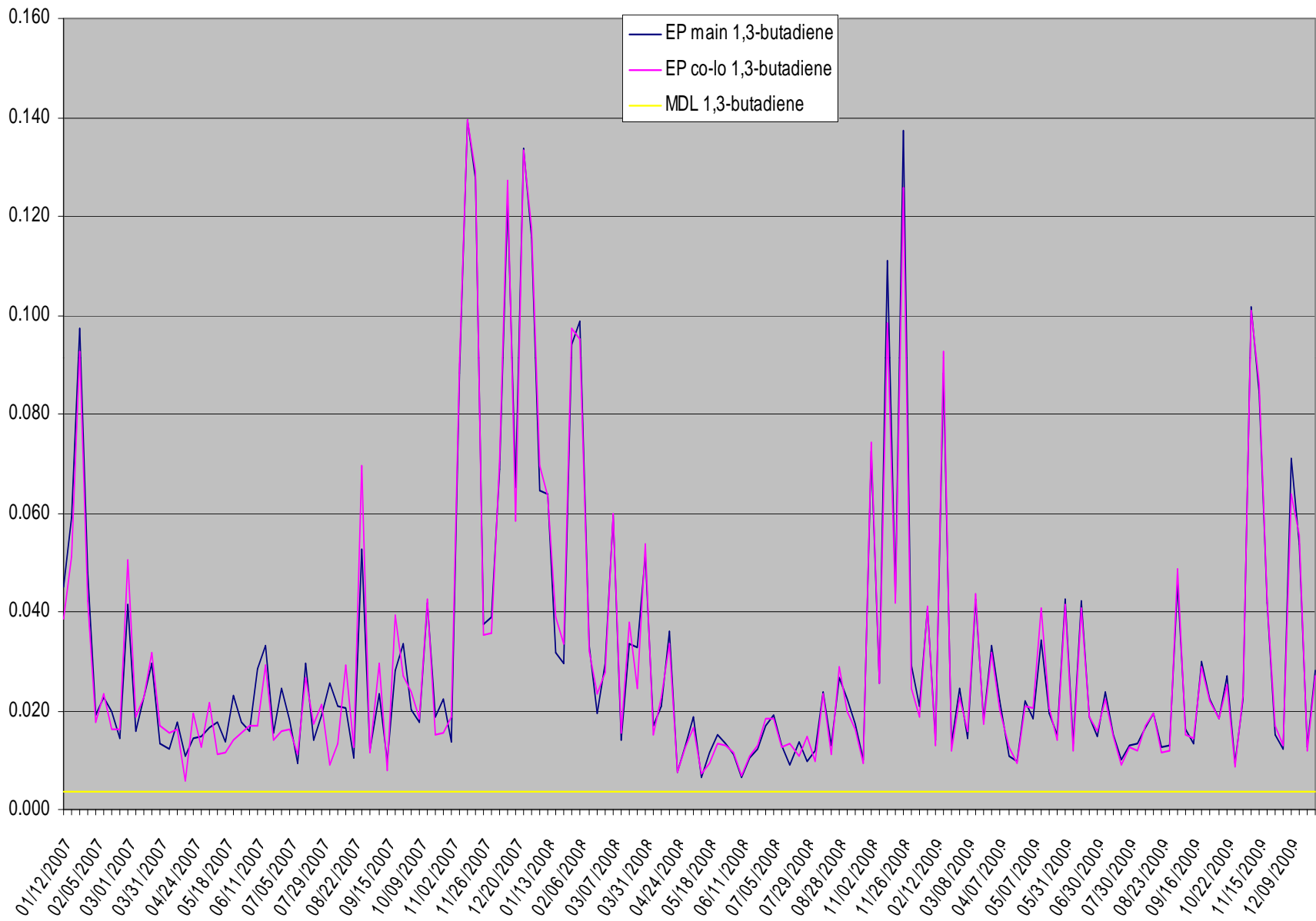
percent difference between co-lo data pairs, 2003-2009									
	1,3-butadiene		dichloromethane		acrolein		ethylene oxide		
	median	3rd quartile	median	3rd quartile	median	3rd quartile	median	3rd quartile	
2003	11%	22%	4%	7%	45%	78%	26%	43%	
2004	14%	28%	4%	8%	25%	45%	30%	56%	
2005	15%	25%	5%	9%	33%	46%	25%	41%	
2006	8%	14%	6%	11%	22%	47%	21%	39%	
2007	15%	25%	5%	7%	19%	30%	16%	35%	
2008	7%	12%	3%	5%	15%	28%	18%	37%	
2009	6%	10%	4%	8%	28%	40%	17%	28%	
	butane		trans-2-butene		benzene		toluene		
	median	3rd quartile	median	3rd quartile	median	3rd quartile	median	3rd quartile	
2003	2%	4%	9%	20%	2%	5%	3%	4%	
2004	2%	5%	12%	37%	3%	5%	4%	7%	
2005	2%	5%	12%	20%	3%	5%	4%	9%	
2006	2%	4%	10%	19%	4%	6%	3%	8%	
2007	2%	4%	11%	23%	3%	6%	2%	5%	
2008	3%	4%	7%	16%	2%	5%	3%	5%	
2009	3%	7%	7%	12%	5%	7%	6%	8%	

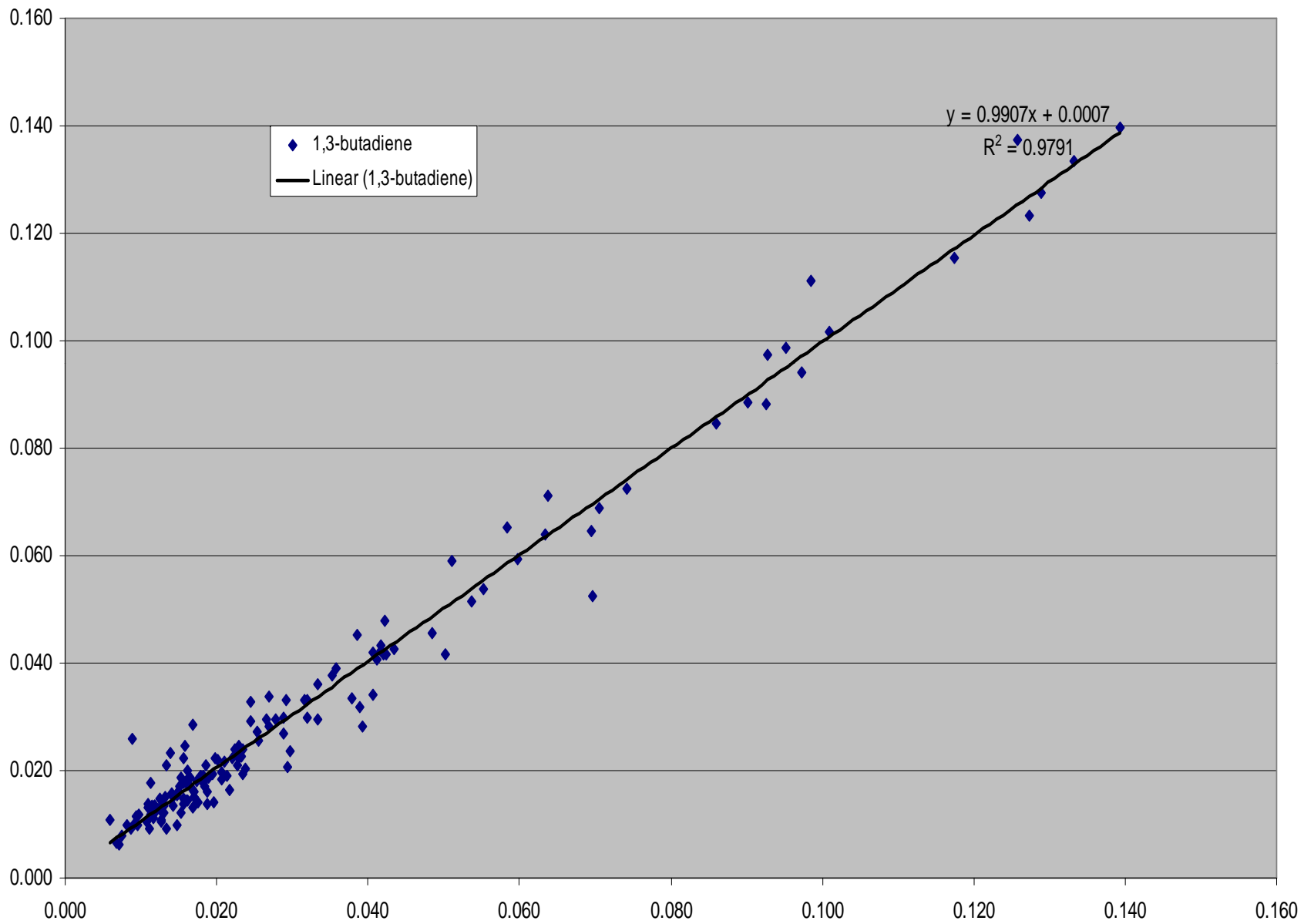
co-lo percent diff

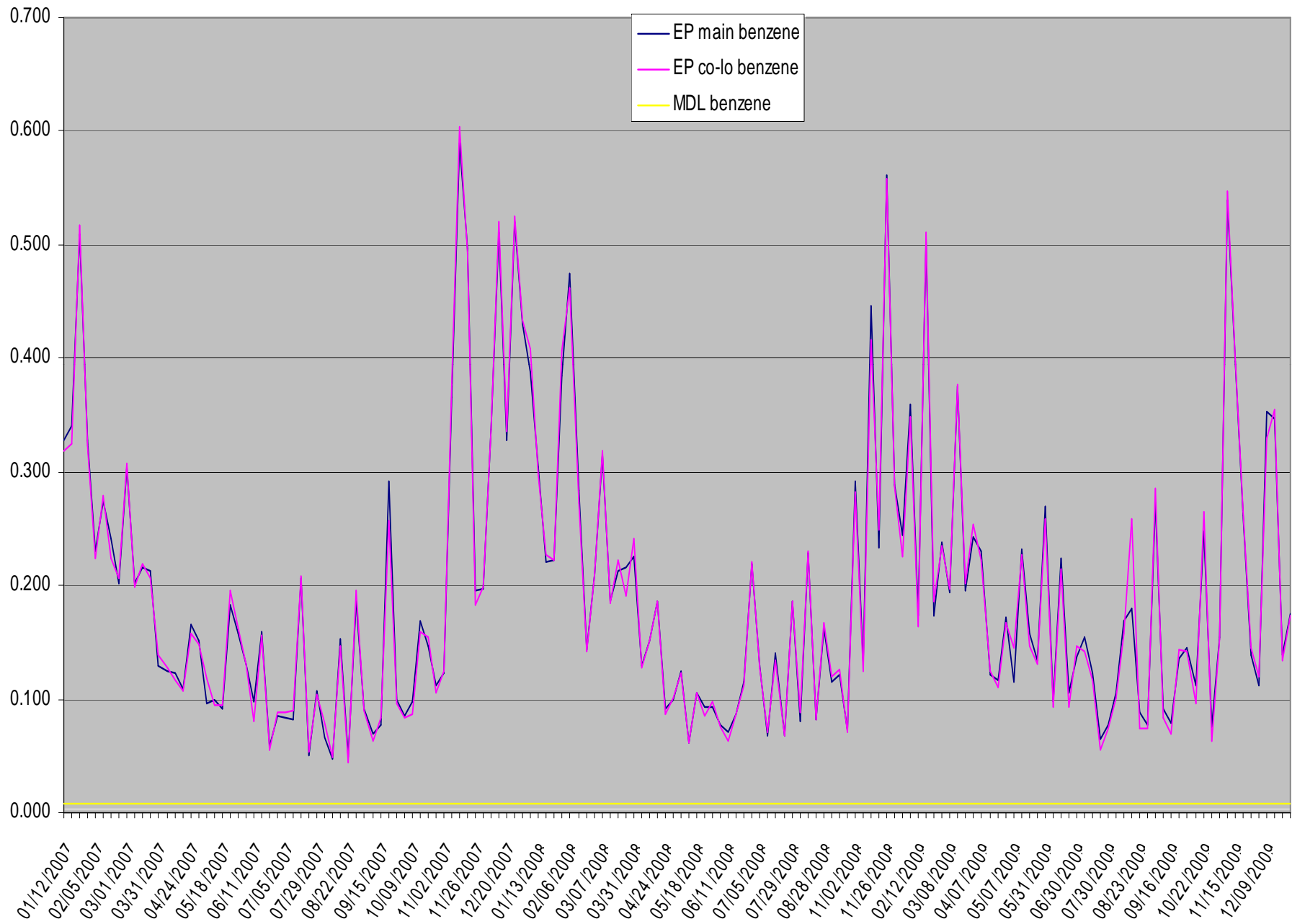


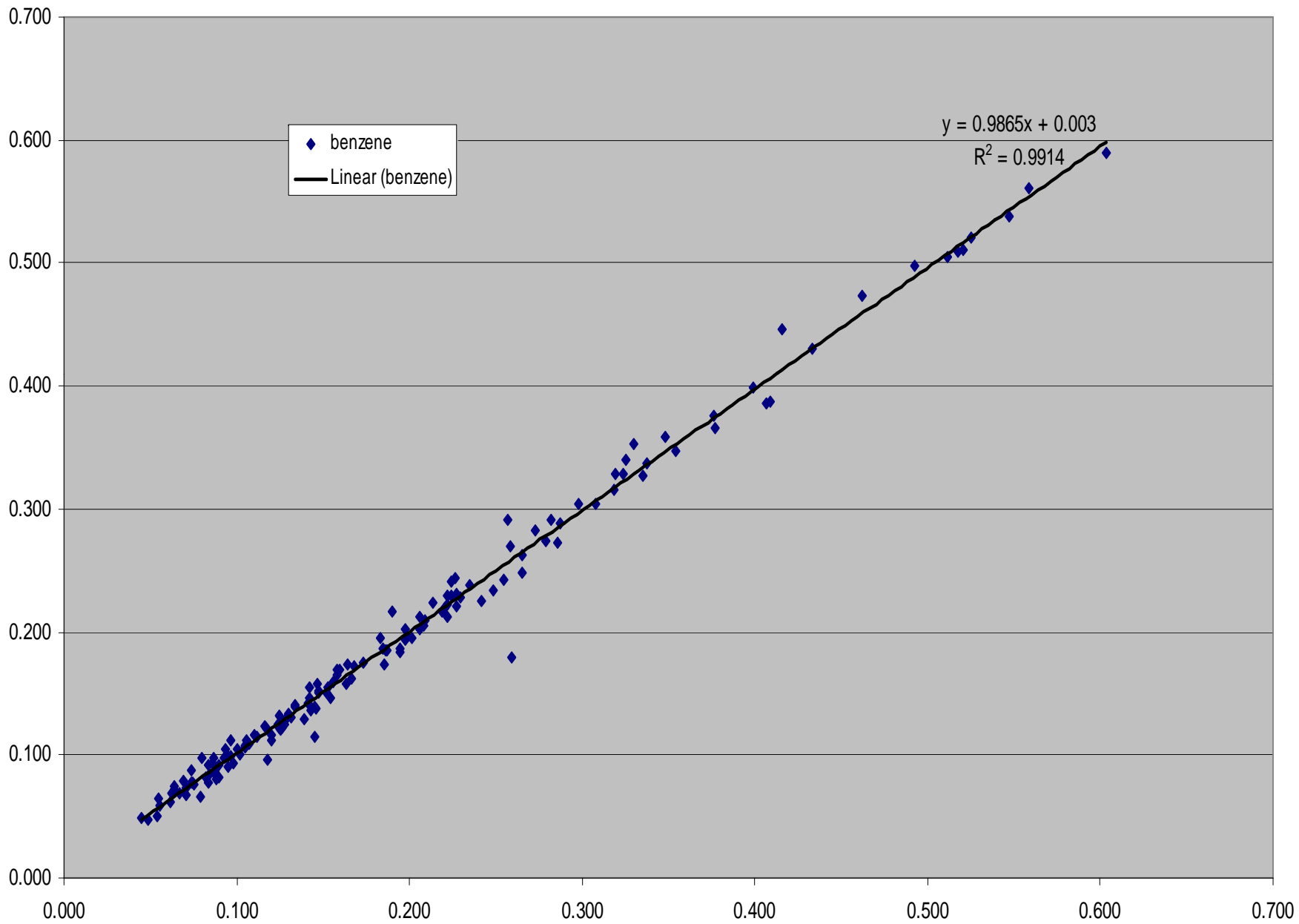
co-lo percent diff

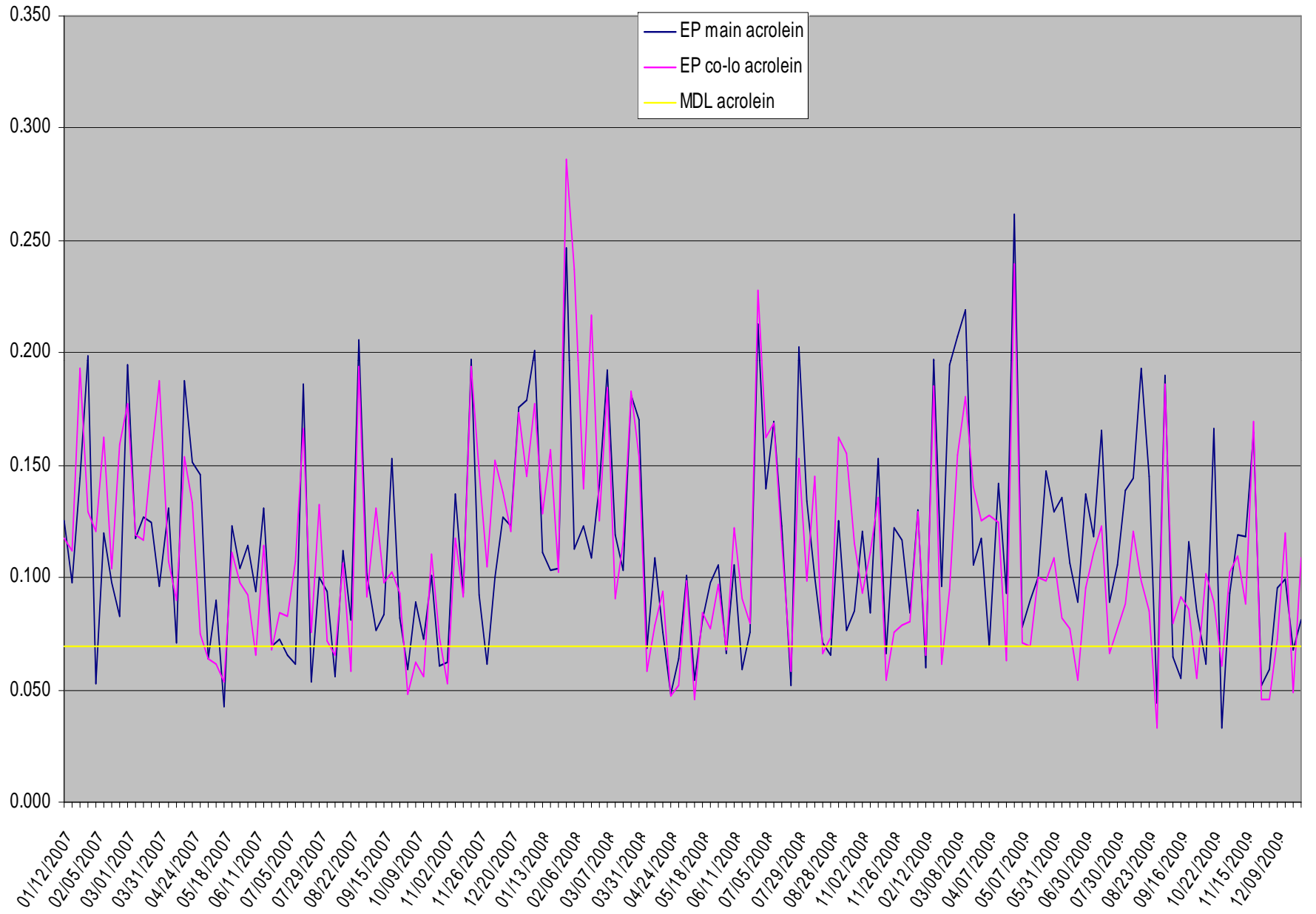


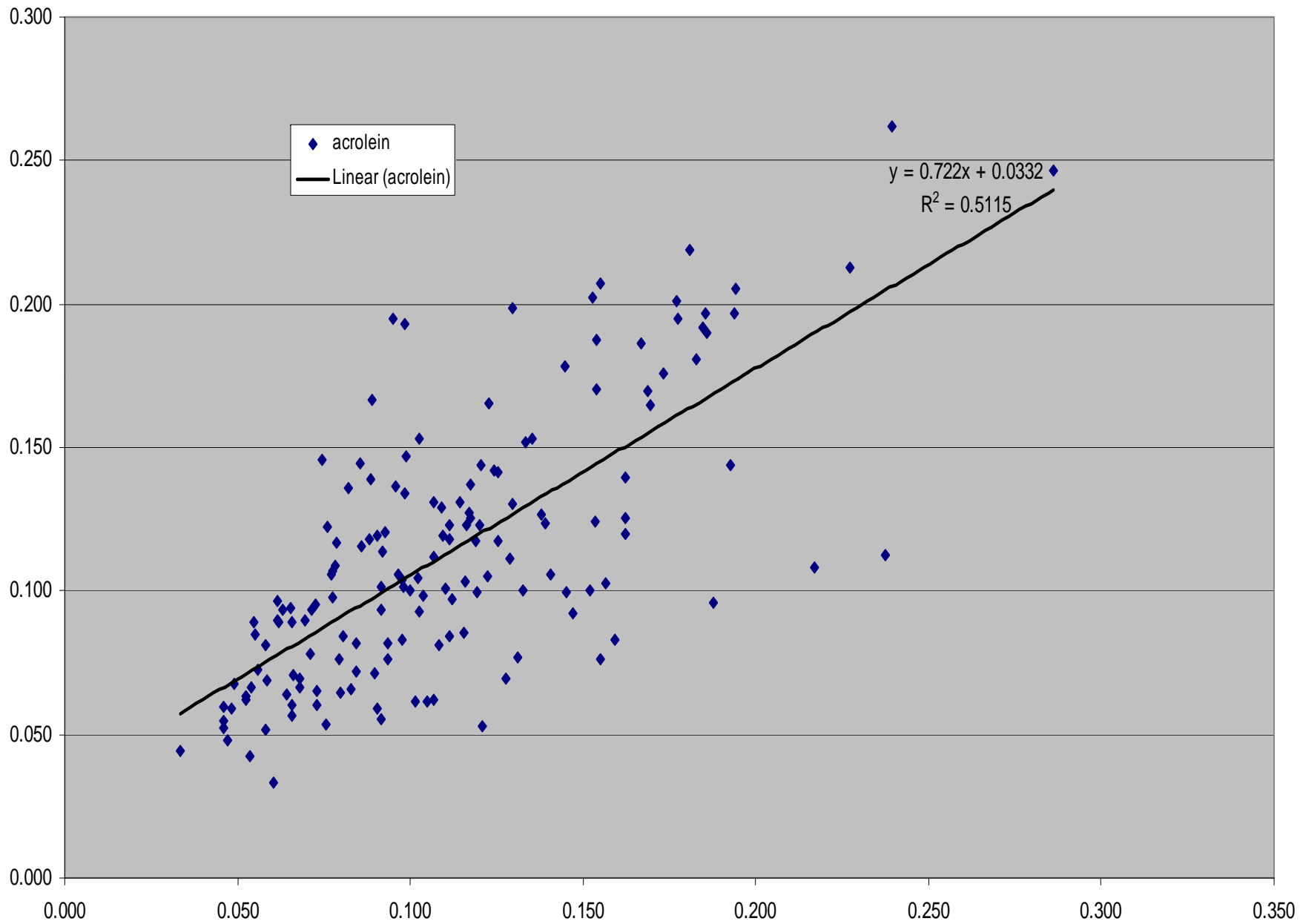


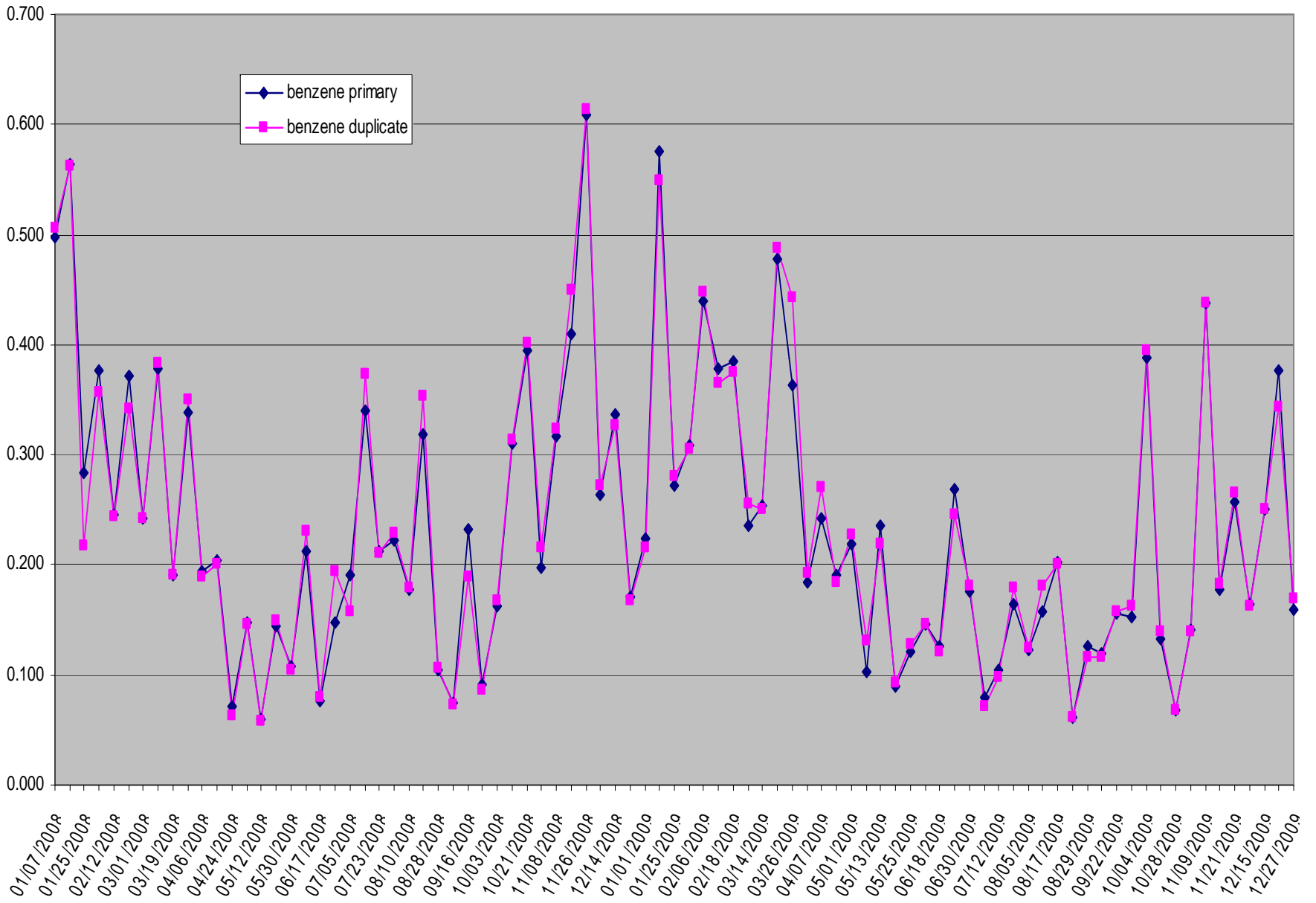




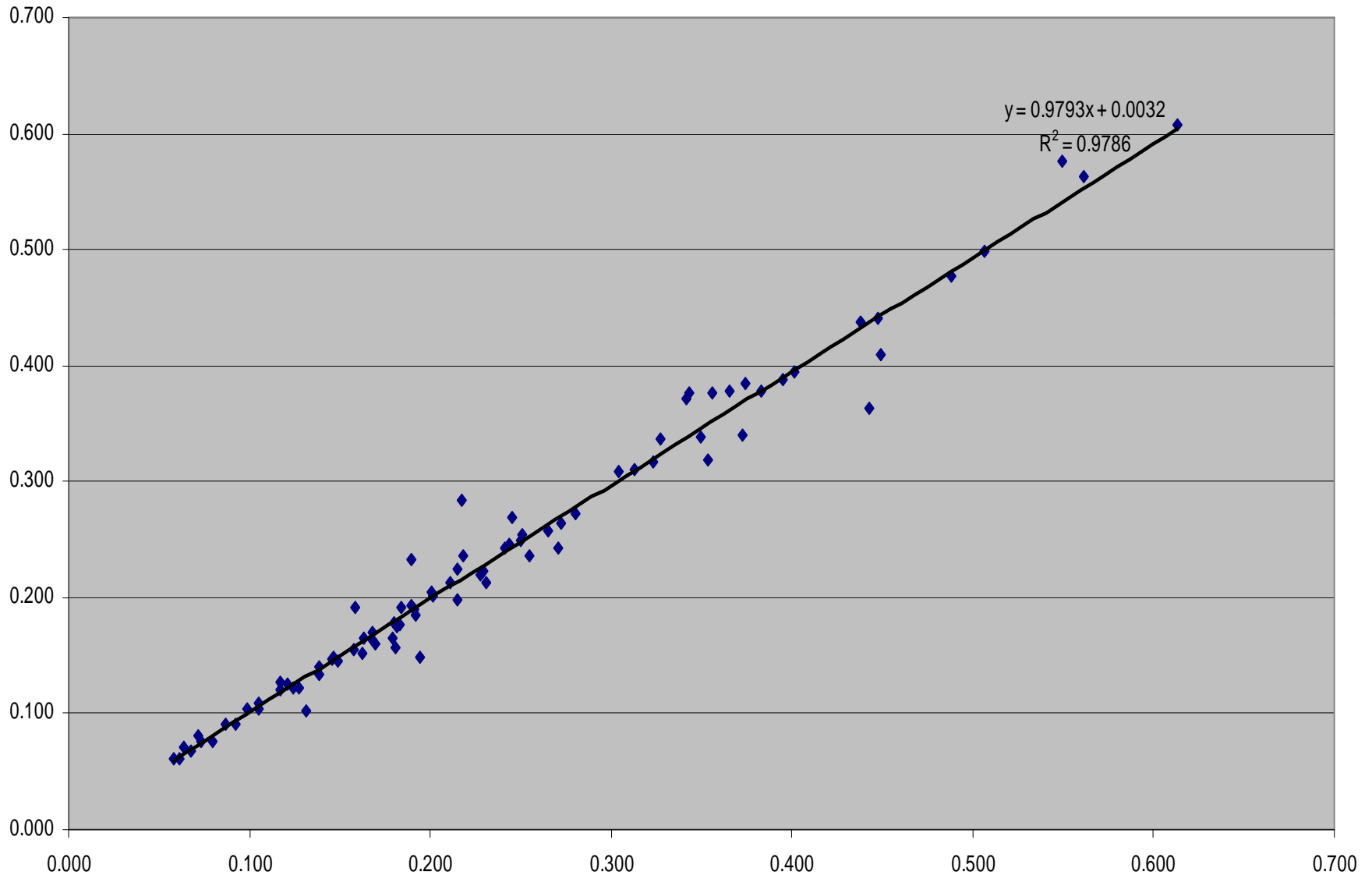


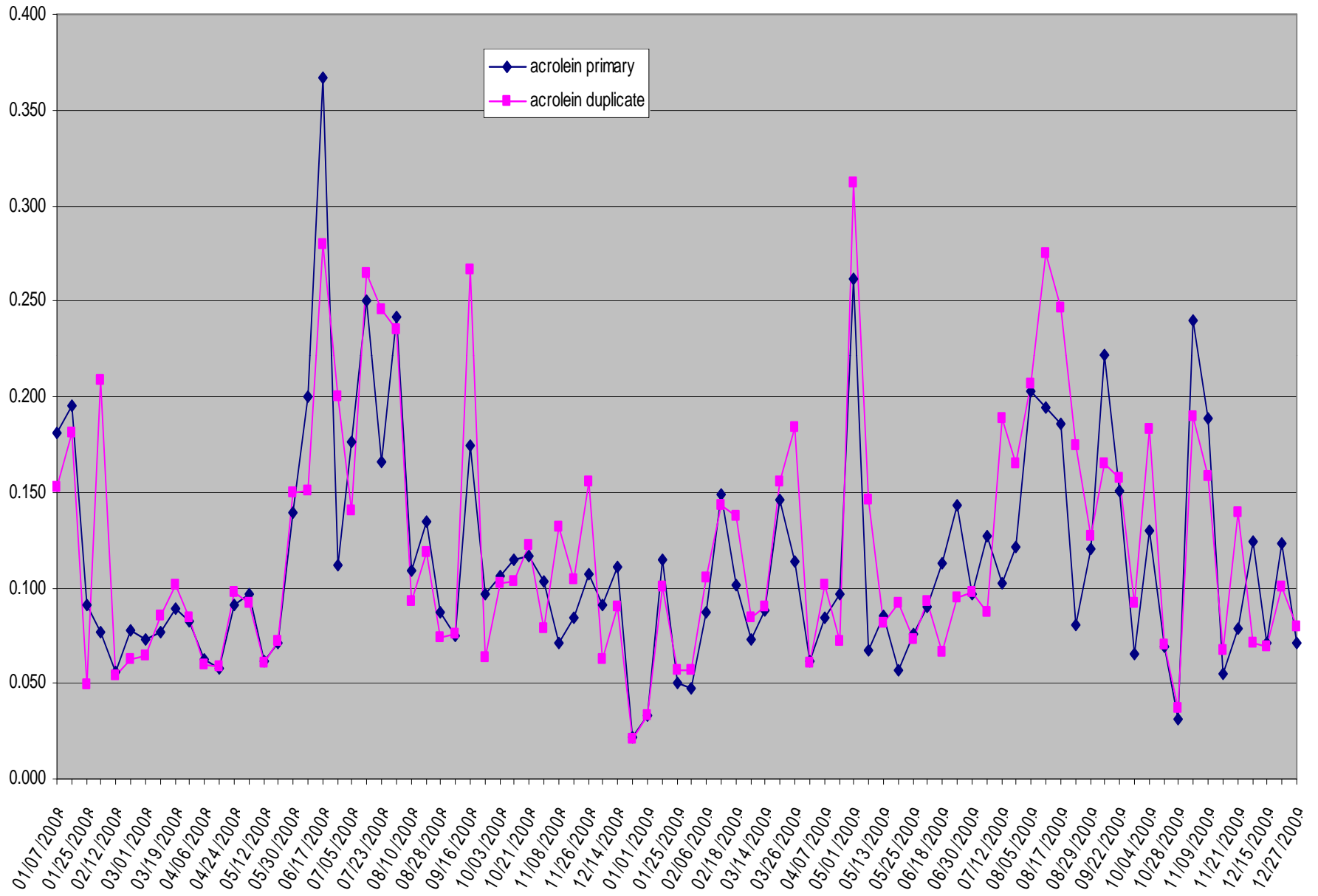


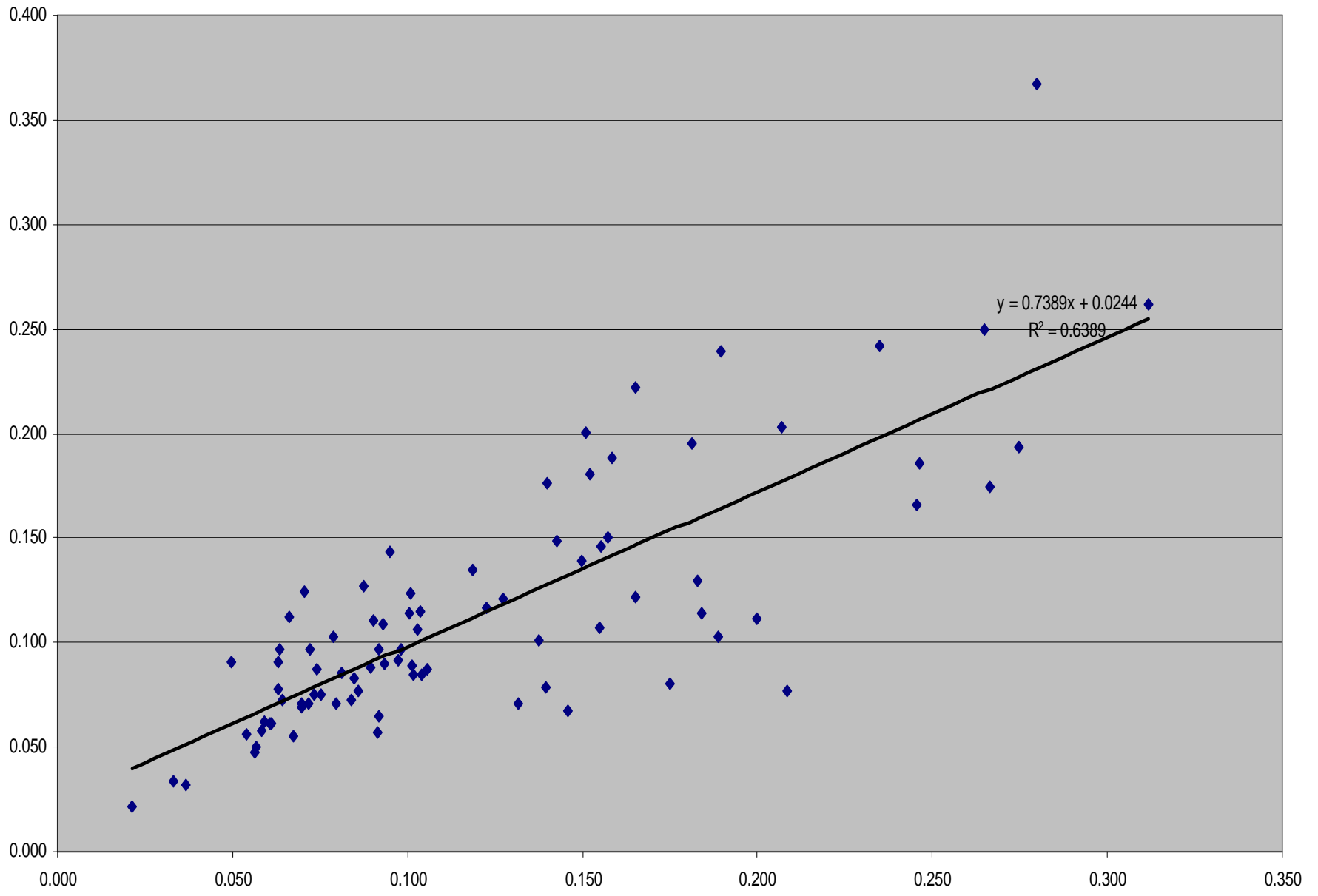




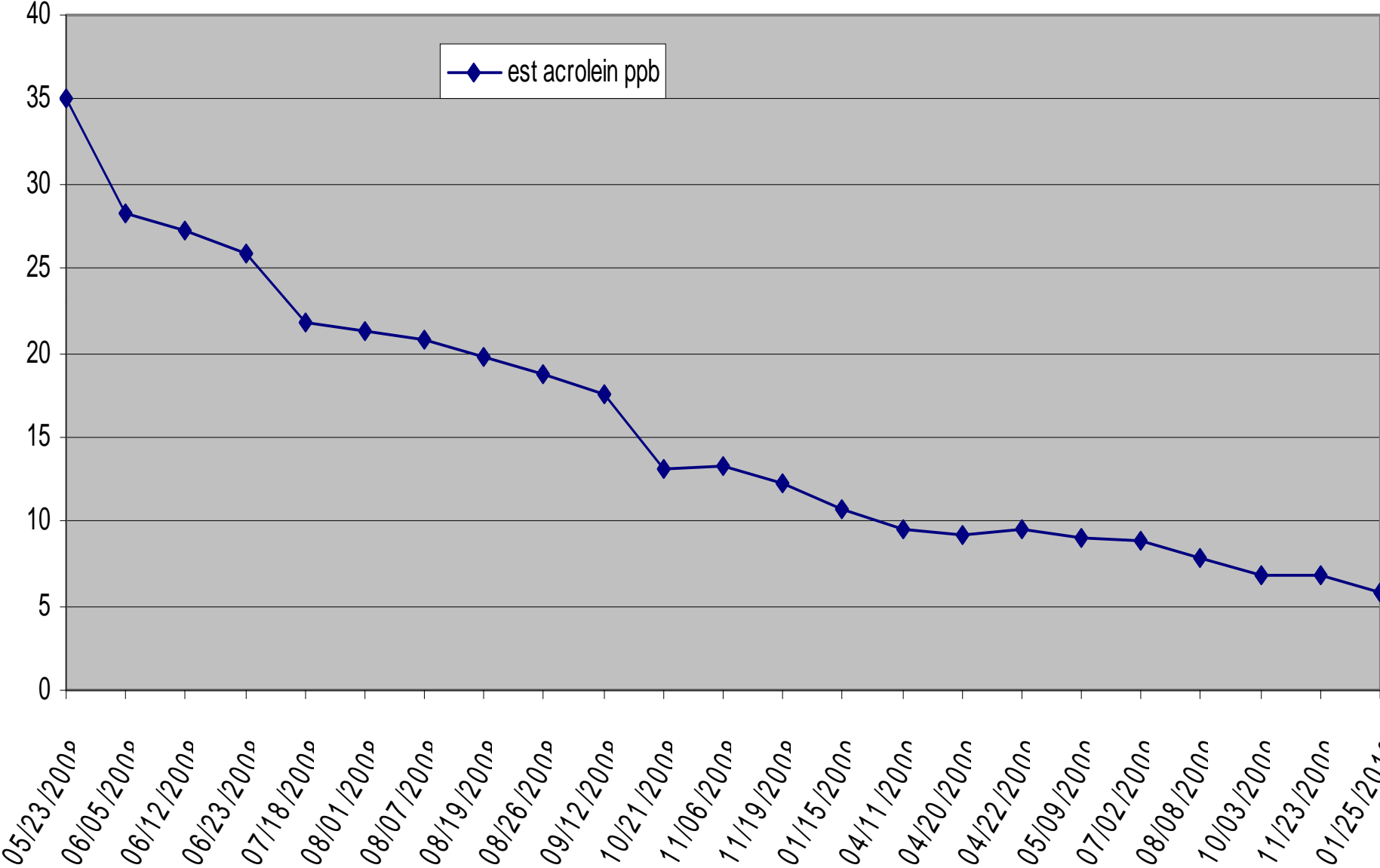
Mass DEP benzene



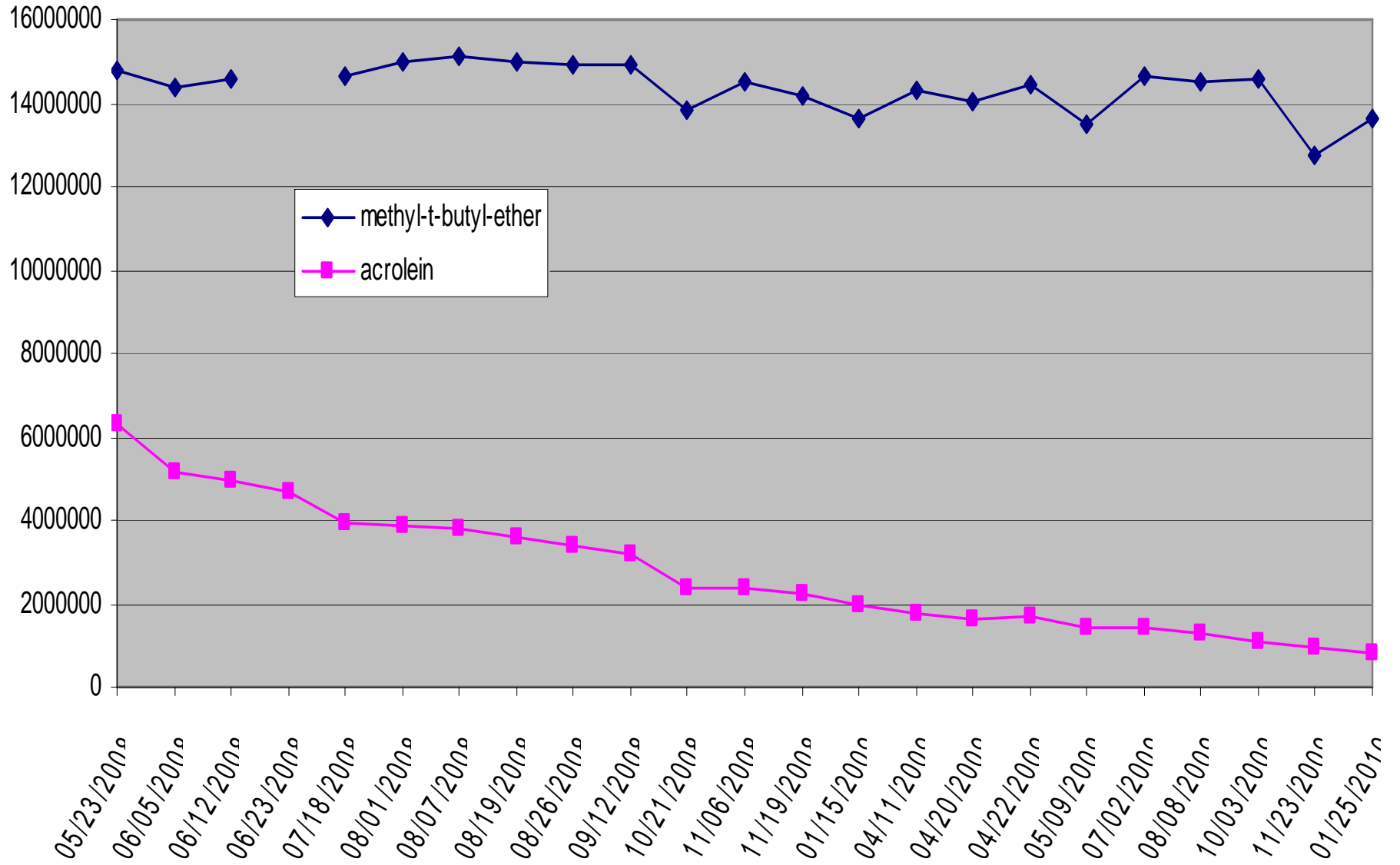




Acrolein conc in Spectra Gases cylinder cc-270616



FID peak areas in Oxyg std



Conclusion:

Acrolein is likely to give you trouble, and even if you're careful, the analytical error will probably be in the 20-30% range.

It can get significantly worse than that.