

MagRay 1000 Calibration Exp. Method

1. 사용장비

- 1) MagRay 1000 (Nano Magnetic Particle Analyzer Controller)

Serial No. : 58YV-25OG-A03R-71ES

- 2) Measurement Head

Serial No. : AU7R-B7QV-H0CD-122N

2. S/W setting condition

- 1) Low Frequency

	source	reference
Freq.	1000	1000
phase	0	0
Gain	0.4	0.1
Gain(V)	0.6	0.1

- 2) High Frequency

	source	reference
Freq.	65000	65000
phase	0	0
Gain	0.6	0.1
Gain(V)	0.4	0.1

- 3) Interval : 100 mS

- 4) Sampling rate : 2 MSa/S

3. 실험에 사용된 nano magnetic particle

Chemicell /fluidMAG-UC/C /25mg/ml /100nm /autoclaved

4. 실험 방법

1) Nano magnetic particle(이하 NMP)과 정제수를 준비한다.

2) NMP의 % 농도를 0% ~ 100% 까지 10% 씩 증가시켜 시료를 준비한다.

(시료 혼합 후 각 시료 cell에 mineral oil 20 μ L씩 첨가하여 정제수의 증발을 방지한다.)

3) 준비된 시료를 차례대로 측정하여 각 농도에서의 측정 amplitude를 기록한다.

(각 시료는 3번 측정하여 각 농도에서의 측정 amplitude를 기록한다.)

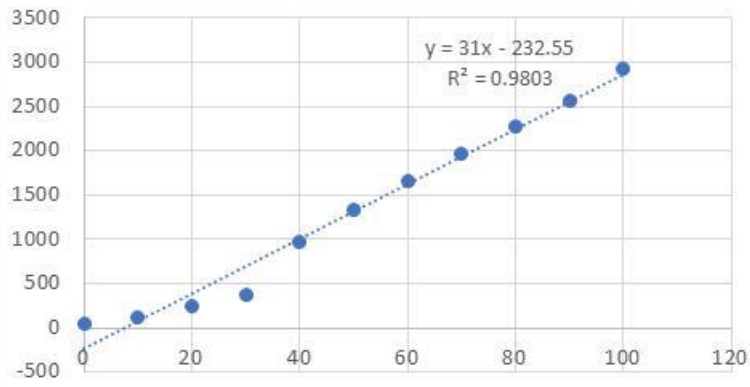
4) 측정값을 분석하여 detection limit 근처에서 추가 측정을 실시하고, 각 농도에서의 측정 amplitude를 기록한다.

5. 실험 결과

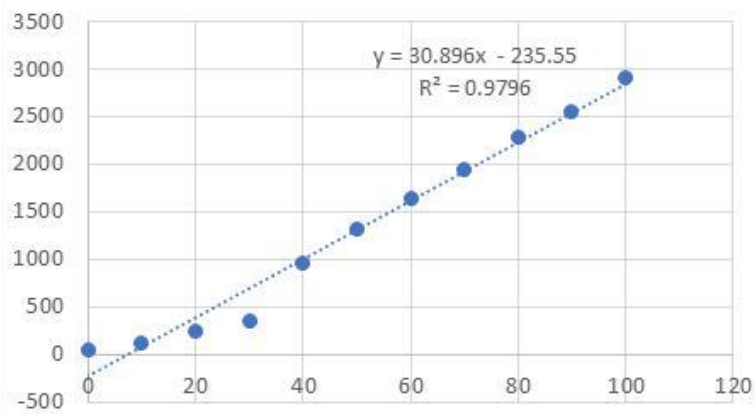
1) NMP 0% ~ 100% 측정결과

	NMP(μ L)	Water(μ L)	Conc.(%)	Exp. 1	Exp. 2	Exp. 3
1	0	100	0	47	48	34
2	10	90	10	120	120	119
3	20	80	20	255	251	235
4	30	70	30	370	358	347
5	40	60	40	980	965	967
6	50	50	50	1330	1320	1320
7	60	40	60	1660	1650	1620
8	70	30	70	1970	1950	1965
9	80	20	80	2270	2280	2285
10	90	10	90	2560	2550	2560
11	100	0	100	2930	2910	2900

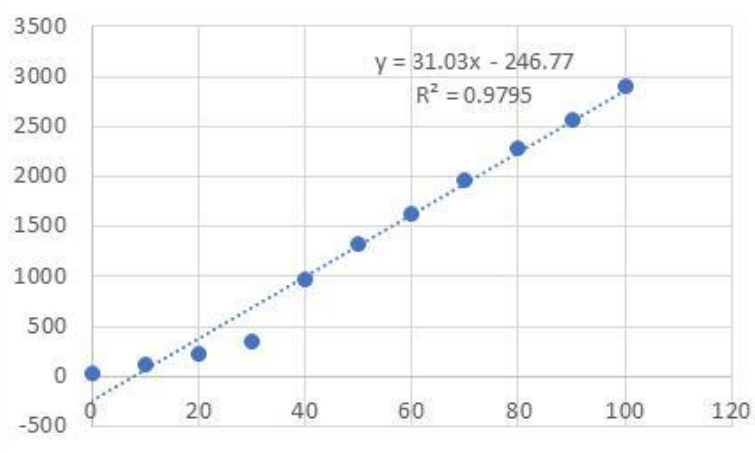
Exp. 1



Exp. 2

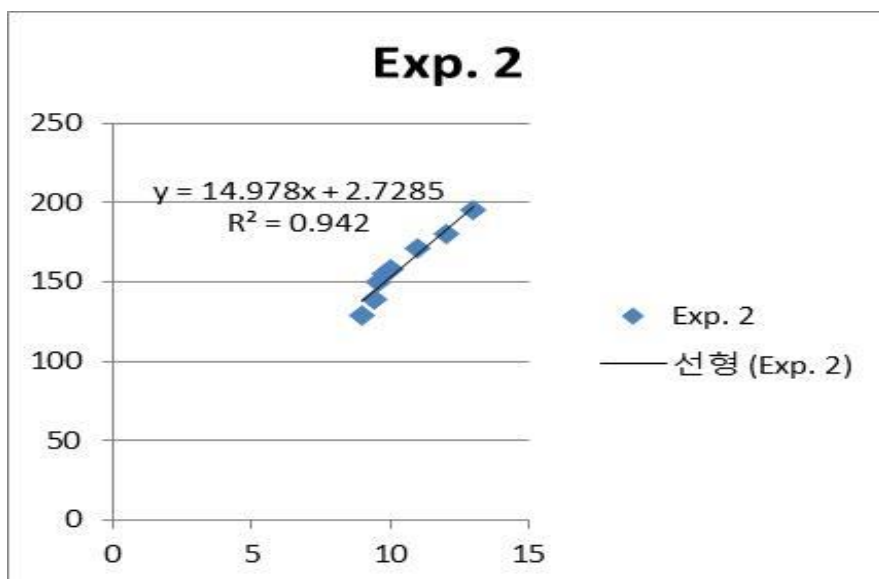
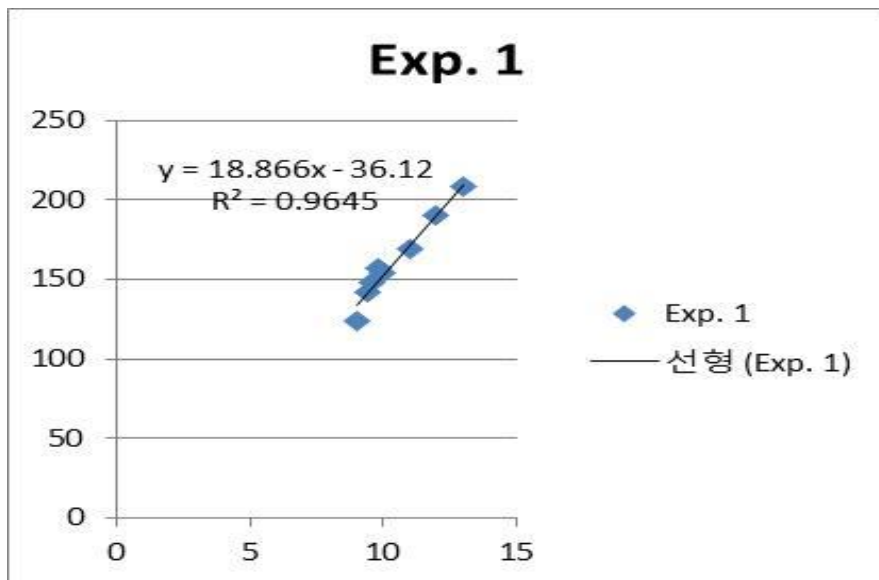


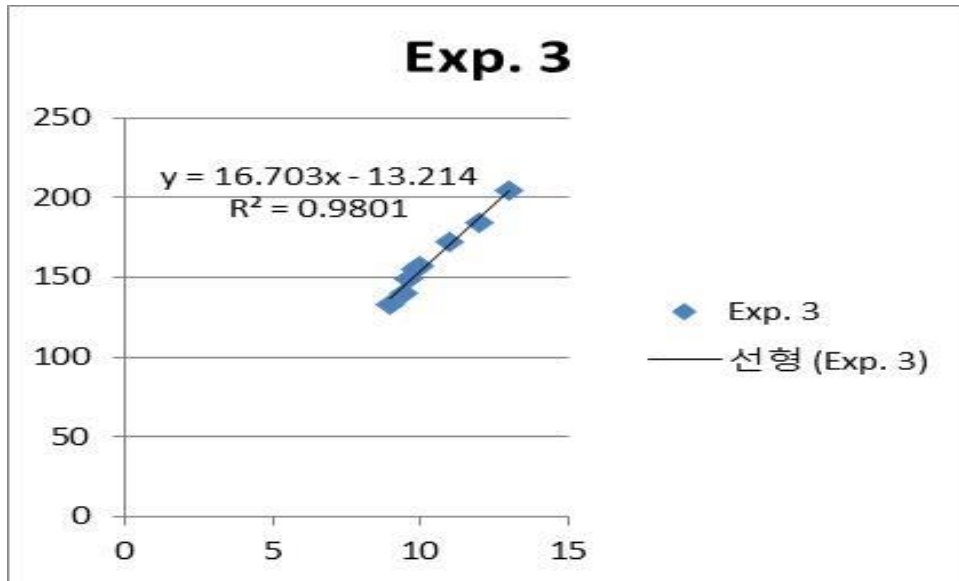
Exp. 3



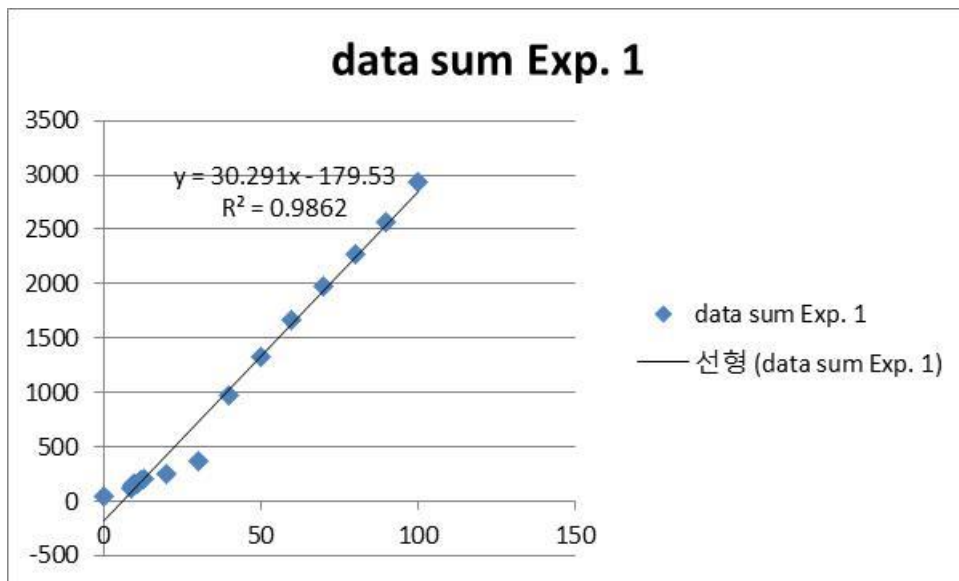
2) Detection limit 근처에서 측정 결과

	NMP(μ L)	Water(μ L)	Conc.(%)	Exp. 1	Exp. 2	Exp. 3
1	9	91	9	124	129	133
2	9.4	90.6	9.4	142	139	140
3	9.6	90.4	9.6	148	150	149
4	9.8	90.2	9.8	157	155	155
5	10	90	10	154	158	157
6	11	89	11	169	171	172
7	12	88	12	190	180	184
8	13	87	13	208	195	204

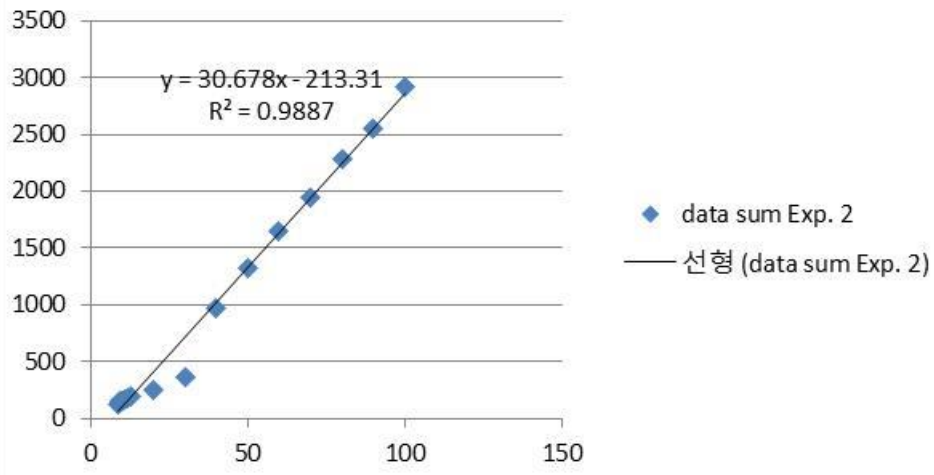




3) 1)과 2)의 data를 함께 그래프로 표시한 결과



data sum Exp. 2



Data Sum Exp. 3

