METHOD VERIFICATION

NO. INSTRUMENT : 060-LAB-1001/A-20
NAMA INSTRUMENT : Total Sulfur Analyzer NSX-2100
METHOD STANDARD : ASTM D6667

DATA VERIFIKASI : 14 November 2018
STANDARD LIQUID : Dibuthyl Disulfide (DBDS)
VERIFIKASI OLEH : RD
DIPERIKSA OLEH : DS

UJI AKURASI DAN PRESISI

No.	Konsentrasi std Teoritis (ppm)	Area	Density	Hasil (ppm)	%Rec
1	0.202	9.7	0.6600	0.197	98
2	0.202	10.2	0.6600	0.214	106
3	0.202	9.8	0.6600	0.201	100
4	0.202	10.0	0.6600	0.206	102
5	0.202	10.1	0.6600	0.210	104
6	0.202	11.0	0.6600	0.239	118
7	0.202	9.1	0.6600	0.180	89
8	0.202	10.9	0.6600	0.236	117
Rerata (x)				**0.210**	**104**
Standard Deviasi (sd)				**0.020**	
% RSD = (sd/x)100 %				**9.332**	
CV Horwitz				**20.231**	
1/2 * CV Horwitz				**10.116**	
2/3 * CV Horwitz				**13.487**	

Note :
Presisi = %RSD ≤ 2/3 CV-Horwitz (nilai dinyatakan sebagai reproducibility)
Presisi = %RSD ≤ 1/2 CV-Horwitz (nilai dinyatakan sebagai repeatability)
Range Keberterimaan Akurasi, %Recovery = 75-120%

PENENTUAN DETECTION LIMIT

Penentuan Instrument Deteksi Limit

Blanko	Area
1	2.9
2	2.0
3	2.6
4	2.3
5	1.9
6	3.1
7	2.3
Rerata (x)	**2.443**
Standard Deviasi (SD)	**0.447**
IDL=3*SD	**1.3**

Penentuan Method Detection Limit

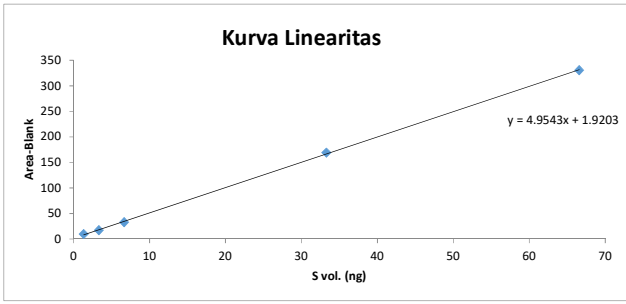
STD No.	Konsentrasi std Teoritis	Area	Hasil (ppm)
1	0.202	9.7	0.197
2	0.202	10.2	0.214
3	0.202	9.8	0.201
4	0.202	10.0	0.206
5	0.202	10.1	0.210
6	0.202	11.0	0.239
7	0.202	9.1	0.180
8	0.202	8.3	0.155
9	0.202	10.9	0.236
Rerata (x)			**0.204**
Standard Deviasi (sd)			**0.026**
MDL = 2,8965*sd			**0.075**
LOD = 3sd			**0.078**
LOQ = 10sd			**0.260**
S/N = x/sd			**7.843**

Note : Tabel t dengan tingkat Kepercayaan 99%

UJI LINEARITY

STD No.	s vol (ng)	Area			Rata-rata
1	1.333	10.8	10.2	8.9	10.0
2	3.326	18.2	16.5	17.7	17.5
3	6.659	34.9	30.5	33.6	33.0
4	33.284	168.0	169.8	169.8	169.2
5	66.568	326.8	334.9	330.5	330.7
Correlation	**0.9999**				
Slope	**4.9543**				
Intercept	**1.9203**				

Note :
Koefisien korelasi (r) ≥ 0,995



UJI KEBERTERIMAAN

Parameter	Persyaratan	Hasil	Keterangan
Low Check	MDL < CRM	0,075 < 0.202	Memenuhi
High Check	10 x MDL > CRM	0,754 > 0,202	Memenuhi
Signal/Noise	Rata2/SD = 2,5-10	7.84	Memenuhi
Dibawah NAB	MDL < Regulasi	-	-
Recovery,%	75-120	104	Memenuhi

Sumber :

Analytical Detection Limit Guidance & Laboratory Guide for Determining Method Detection Limits.

The fitness for purpose of analytical methods.

Guide to method validation for quantitative analysis in chemical testing laboratories (ISO 17025).

Guideline for the validation & verification of chemical test method.