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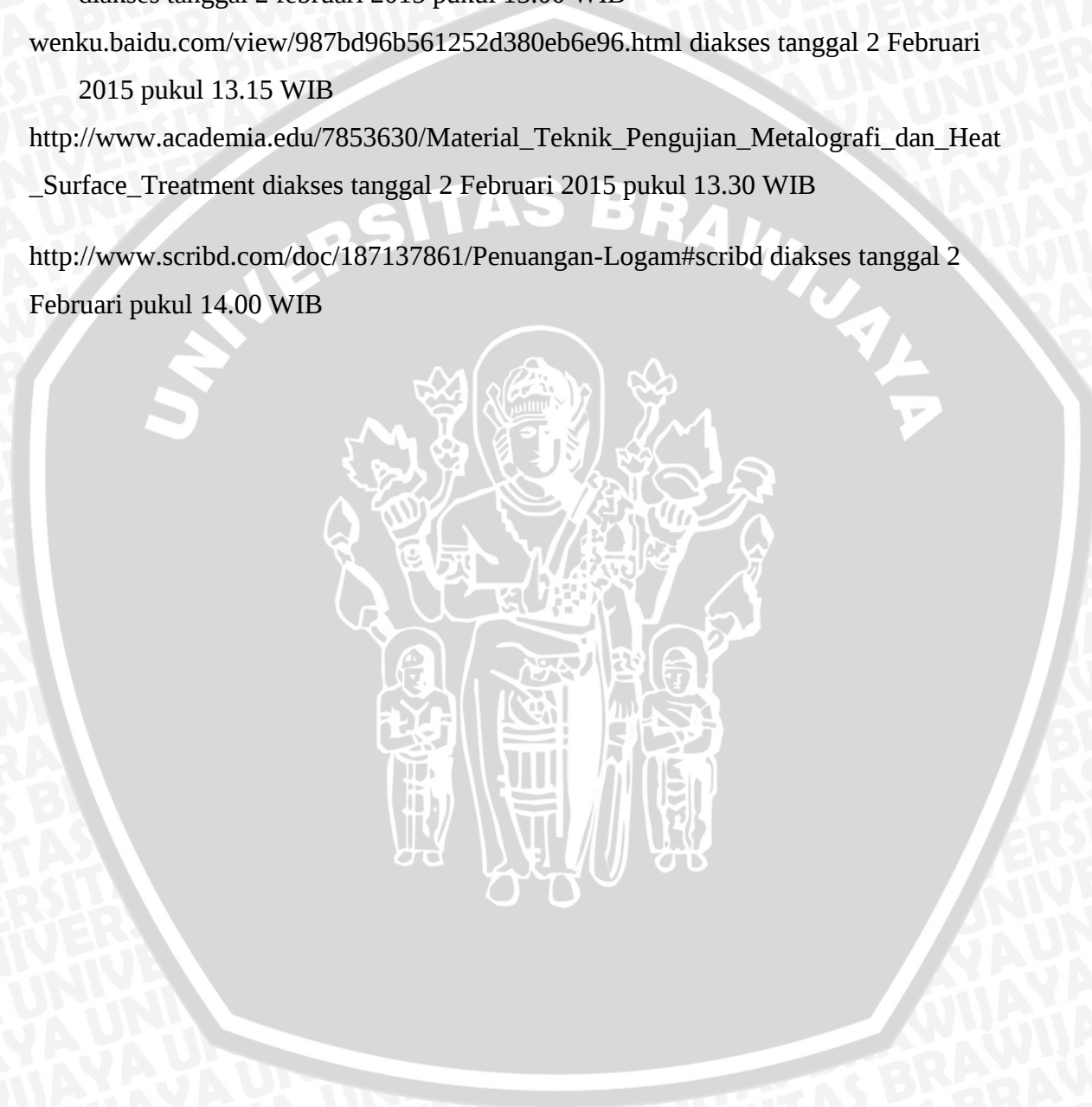
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CENTER FOR MATERIALS PROCESSING AND FAILURE ANALYSIS
DEPARTEMEN TEKNIK METALURGI & MATERIAL-UNIVERSITAS INDONESIA

LABORATORIUM UJI MATERIAL

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LAPORAN PENGUJIAN KOMPOSISI KIMIA COMPOSITION TEST REPORT

Hal 1 dari 2

No Laporan	0317	Bahan	Aluminium
Report Nr		Material	
Pemakai Jasa	Bpk. Wahyono Suprpto	Identitas Bahan	Al-a
Customer		Material Identity	
Alamat	Dept. Metalurgi & Material	Tanggal Terima	27 Maret 2009
Address		Receiving Date	
No Kontrak	0317/PT.02/FT04/P/2009	Standar	ASTM A751
Contract Nr.		Standard	
Tanggal Uji	30 Maret 2009	Mesin Uji	Optical Emission Spectrometer
Date of Test		Testing machine	

Kode Sampel Sample Code	Si (%)	Fe (%)	Cu (%)	Mn (%)	Mg (%)	Zn (%)
Al-a	0.28	<0.001	0.006	0.108	0.008	< 0.005
	Ti (%)	Cr (%)	Ni (%)	Pb (%)	Sn (%)	Al (%)
	0.001	0.029	0.023	< 0.002	< 0.01	99.5

Depok, 1 April 2009
LABORATORIUM UJI MATERIAL
Manajer Teknis,

(Ahmad Ivan Karayan, ST, M.Eng)

Laporan hasil pengujian ini hanya berlaku untuk sampel yang diuji di Laboratorium Uji Material ; publikasi serta penggunaan dokumen ini atau sebagian dari padanya harus dengan izin dari Laboratorium Uji Material

GUANGZHOU JIN YUAN YE XING TRADING CO.,LTD
ROOM 921,BAIHUI BUILDING, 193 ZHONGSHAN FIVE ROAD, YUEXIU
DISTRICT,GUANGZHOU,CHINA

质量证明

CERTIFICATE OF ANALYSIS

Manufacturer:GUANGZHOU JIN YUAN YE XING TRADING CO.,LTD

日期:2014年5月20日

Date:May.20.2014

We hereby certify that we analyzed the 3 MTS MAGNESIUM INGOT and got the following result:

CONTRACT NO.:LY13-8805

INVOICE NO.:LY13-8805

LOT NO.:JX-MD-05-09-004

Weight: 3 MTS

Quality: MG:99.9%

SI:0.015%

AL:0.026%

FE:0.0027%

CU:0.002%

MN:0.036%

NI:0.0002%

SIZE:100KG/INGOT



LAMPIRAN 3

TABEL PENGUKURAN BESAR BUTIR ASTM E112

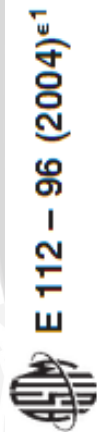


TABLE 4 Grain Size Relationships Computed for Uniform, Randomly Oriented, Equiaxed Grains

Grain Size No. G	$\bar{N}_A$ Grains/Unit Area		$\bar{A}$ Average Grain Area		$\bar{\sigma}$ Average Diameter		$\bar{T}$ Mean Intercept		$\bar{N}_L$
	No./in. ² at 100X	No./mm ² at 1X	mm ²	μm ²	mm	μm	mm	μm	
00	0.25	3.88	0.2581	258064	0.5080	508.0	0.4525	452.5	2.21
0	0.50	7.75	0.1290	129032	0.3592	359.2	0.3200	320.0	3.12
0.5	0.71	10.96	0.0912	91239	0.3021	302.1	0.2691	269.1	3.72
1.0	1.00	15.50	0.0645	64516	0.2540	254.0	0.2263	226.3	4.42
1.5	1.41	21.92	0.0456	45620	0.2136	213.6	0.1903	190.3	5.26
2.0	2.00	31.00	0.0323	32258	0.1796	179.6	0.1600	160.0	6.25
2.5	2.83	43.84	0.0228	22810	0.1510	151.0	0.1345	134.5	7.43
3.0	4.00	62.00	0.0161	16129	0.1270	127.0	0.1131	113.1	8.84
3.5	5.66	87.68	0.0114	11405	0.1068	106.8	0.0951	95.1	10.51
4.0	8.00	124.00	0.00806	8065	0.0898	89.8	0.0800	80.0	12.50
4.5	11.31	175.36	0.00570	5703	0.0755	75.5	0.0673	67.3	14.87
5.0	16.00	248.00	0.00403	4032	0.0635	63.5	0.0566	56.6	17.68
5.5	22.63	350.73	0.00285	2851	0.0534	53.4	0.0476	47.6	21.02
6.0	32.00	496.00	0.00202	2016	0.0449	44.9	0.0400	40.0	25.00
6.5	45.25	701.45	0.00143	1426	0.0378	37.8	0.0336	33.6	29.73
7.0	64.00	992.00	0.00101	1008	0.0318	31.8	0.0283	28.3	35.36
7.5	90.51	1402.9	0.00071	713	0.0267	26.7	0.0238	23.8	42.04
8.0	128.00	1984.0	0.00050	504	0.0225	22.5	0.0200	20.0	50.00
8.5	181.02	2805.8	0.00036	356	0.0189	18.9	0.0168	16.8	59.46
9.0	256.00	3968.0	0.00025	252	0.0159	15.9	0.0141	14.1	70.71
9.5	362.04	5611.6	0.00018	178	0.0133	13.3	0.0119	11.9	84.09
10.0	512.00	7936.0	0.00013	126	0.0112	11.2	0.0100	10.0	100.0
10.5	724.08	11223.2	0.000089	89.1	0.0094	9.4	0.0084	8.4	118.9
11.0	1024.00	15872.0	0.000063	63.0	0.0079	7.9	0.0071	7.1	141.4
11.5	1448.15	22446.4	0.000045	44.6	0.0067	6.7	0.0060	5.9	168.2
12.0	2048.00	31744.1	0.000032	31.5	0.0056	5.6	0.0050	5.0	200.0
12.5	2896.31	44892.9	0.000022	22.3	0.0047	4.7	0.0042	4.2	237.8
13.0	4096.00	63488.1	0.000016	15.8	0.0040	4.0	0.0035	3.5	282.8
13.5	5792.62	89785.8	0.000011	11.1	0.0033	3.3	0.0030	3.0	336.4
14.0	8192.00	126976.3	0.000008	7.9	0.0028	2.8	0.0025	2.5	400.0

LAMPIRAN 4

TABEL JEFFRIES

TABLE 5 Relationship Between Magnification Used and Jeffries' Multiplier, f , for an Area of 5000 mm² (a Circle of 79.8-mm Diameter) ($f = 0.0002 M^2$)

Magnification Used, M	Jeffries' Multiplier, f , to Obtain Grains/mm ²
1	0.0002
10	0.02
25	0.125
50	0.5
75 ^A	1.125
100	2.0
150	4.5
200	8.0
250	12.5
300	18.0
500	50.0
750	112.5
1000	200.0

400 ←

→ 34

^A At 75 diameters magnification, Jeffries' multiplier, f , becomes unity if the area used is 5625 mm² (a circle of 84.5-mm diameter).



LAMPIRAN 5 DATA HASIL PENGUJIAN KEKERASAN



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
FAKULTAS TEKNIK JURUSAN MESIN UNIVERSITAS BRAWIJAYA

LABORATORIUM PENGUJIAN BAHAN

Jl. Mayjen Haryono 167 Telp. 553286 Pes. 1214 Malang 65145

DATA HASIL PENGUJIAN

Jenis Pengujian : Pengujian Kekerasan Brinell Hardness Tester
Satuan : BHN
Beban : 43,2 Kg
Bahan : Logam Paduan Al-Mg
Penguji : Satriyo Wiweko Setyo Muntoho
Nim. : 115060201111008
Program Studi : Jurusan Teknik Mesin
Instansi : Universitas Brawijaya Malang
Tanggal Pengujian : 04 Februari 2015

Kecepatan Penuangan	Kekerasan (BHN)									
	Titik	Titik	Titik	Titik	Titik	Titik	Titik	Titik	Titik	Titik
	1	2	3	4	5	6	7	8	9	10
5 cc/s	141	141	137	135	138	138	135	138	130	126
10 cc/s	145	145	140	140	148	140	137	145	137	133
15 cc/s	148	148	148	145	145	145	137	145	142	135
20 cc/s	148	148	148	145	145	145	145	142	140	137
25 cc/s	151	148	148	148	145	145	148	145	148	145



Malang, 18 Maret 2015

Ka. Lab. Pengujian Bahan

Ir. Erwin Sulisty, MT.

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