

LAMPIRAN 1

Hasil Pengujian Komposisi Kimia



PT. ITOKOH CEPERINDO
Stainless Steel & Alloy Steel Casting



COMPANY : PT. ITOKOH CEPERINDO
 SAMPLE NAME : STD
 CUSTOMER : Sdr. Sholikin
 FURNACE : YG2827C02/79
 OPERATOR : WENDY
 DATE / TIME : 28-JUL-2020 14:37:45
 TASK : Conc_Fei METHOD : FEGLFE

	Fe%	S	Al	C	Ni	Nb	Si
1	91.8038	0.0782	0.0050	4.7201	0.0448	-0.0016	2.1609
2	92.3802	0.0614	0.0024	4.1317	0.0454	-0.0005	2.2068
AVG	92.0920	0.0698	0.0037	4.4259	0.0451	-0.0011	2.1839
<i>SD</i>	<i>0.40764</i>	<i>0.01188</i>	<i>0.00181</i>	<i>0.41608</i>	<i>0.00044</i>	<i>0.00078</i>	<i>0.03251</i>
<i>SD%</i>	<i>0.44</i>	<i>17.02</i>	<i>49.38</i>	<i>9.40</i>	<i>0.97</i>	<i>73.68</i>	<i>1.49</i>

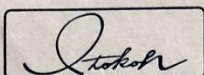
	Cr	V	Mn	Mo	W	P	Cu
1	0.1278	0.0117	0.7789	0.0045	0.0001	0.0598	0.1244
2	0.1278	0.0113	0.7748	0.0043	0.0001	0.0610	0.1283
AVG	0.1275	0.0115	0.7769	0.0044	0.0001	0.0604	0.1264
<i>SD</i>	<i>0.00035</i>	<i>0.00026</i>	<i>0.00287</i>	<i>0.00018</i>	<i>0.00000</i>	<i>0.00085</i>	<i>0.00272</i>
<i>SD%</i>	<i>0.27</i>	<i>2.28</i>	<i>0.37</i>	<i>3.98</i>	<i>0.00</i>	<i>1.40</i>	<i>2.15</i>

	Ti	N	B	Pb	Sb	Ca	Mg
1	0.0236	0.0079	0.0019	0.0028	0.0001	0.0048	0.0001
2	0.0222	0.0030	0.0016	0.0023	0.0001	0.0021	0.0001
AVG	0.0229	0.0055	0.0018	0.0026	0.0001	0.0035	0.0001
<i>SD</i>	<i>0.00100</i>	<i>0.00345</i>	<i>0.00019</i>	<i>0.00036</i>	<i>0.00000</i>	<i>0.00197</i>	<i>0.00000</i>
<i>SD%</i>	<i>4.38</i>	<i>62.93</i>	<i>11.08</i>	<i>14.15</i>	<i>0.00</i>	<i>56.96</i>	<i>0.00</i>

	Zn	Co
1	0.0289	0.0055
2	0.0229	0.0057
AVG	0.0259	0.0056
<i>SD</i>	<i>0.00424</i>	<i>0.00012</i>
<i>SD%</i>	<i>16.38</i>	<i>2.08</i>



INDONESIA OFFICE & FACTORY : Jl. KH. Hasyim As'ari By Pass Selatan Klaten 57417, Jateng - Indonesia
 Phone : (0272) 324208, 324038, Fax. (324213), E-mail : itokohci@indosat.net.id
JAPAN OFFICE : 3-22-2 Motogo, Kawaguchi City, Saitama, Japan
 Phone : 81 482 248 401, Fax : 81 482 242070



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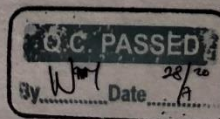
COMPANY : PT. ITOKOH CEPERINDO
 SAMPLE NAME : campuran al 2.5
 CUSTOMER : Sdr. Sholikin
 FURNACE : YG2827C02/81
 OPERATOR : WENDY
 DATE / TIME : 28-JUL-2020 14:45:00
 TASK : Conc_Fei METHOD : FEGLFE

	Fe	S	Al	C	Ni	Nb	Si
1	89.3997	0.0725	1.8508	5.9280	0.1005	-0.0015	1.6948
2	89.6882	0.0512	2.2387	5.1984	0.1029	-0.0008	1.8518
AVG	89.5440	0.0618	2.0447	5.5632	0.1017	-0.0012	1.7733
<i>SD</i>	<i>0.20403</i>	<i>0.01504</i>	<i>0.27430</i>	<i>0.51588</i>	<i>0.00170</i>	<i>0.00045</i>	<i>0.11106</i>
<i>SD%</i>	<i>0.23</i>	<i>24.32</i>	<i>13.41</i>	<i>9.27</i>	<i>1.67</i>	<i>39.36</i>	<i>6.26</i>

	Cr	V	Mn	Mo	W	P	Cu
1	0.1194	0.0122	0.4732	0.0135	0.0001	0.0612	0.1434
2	0.1228	0.0121	0.4703	0.0132	0.0001	0.0685	0.1458
AVG	0.1211	0.0122	0.4717	0.0133	0.0001	0.0649	0.1446
<i>SD</i>	<i>0.00238</i>	<i>0.00007</i>	<i>0.00203</i>	<i>0.00015</i>	<i>0.00000</i>	<i>0.00513</i>	<i>0.00168</i>
<i>SD%</i>	<i>1.96</i>	<i>0.58</i>	<i>0.43</i>	<i>1.11</i>	<i>0.00</i>	<i>7.90</i>	<i>1.16</i>

	Ti	N	B	Pb	Sb	Ca	Mg
1	0.0196	0.0722	0.0020	0.0038	0.0053	0.0094	0.0046
2	0.0174	0.0099	0.0018	0.0027	0.0069	0.0023	0.0001
AVG	0.0185	0.0411	0.0019	0.0033	0.0061	0.0058	0.0023
<i>SD</i>	<i>0.00157</i>	<i>0.04408</i>	<i>0.00018</i>	<i>0.00084</i>	<i>0.00110</i>	<i>0.00497</i>	<i>0.00318</i>
<i>SD%</i>	<i>8.47</i>	<i>107.38</i>	<i>9.34</i>	<i>25.79</i>	<i>17.99</i>	<i>85.19</i>	<i>135.40</i>

	Zn	Co
1	0.0233	0.0061
2	0.0155	0.0065
AVG	0.0194	0.0063
<i>SD</i>	<i>0.00552</i>	<i>0.00027</i>
<i>SD%</i>	<i>28.46</i>	<i>4.30</i>



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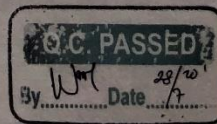
COMPANY : PT. ITOKOH CEPERINDO
 SAMPLE NAME : campuran al 5
 CUSTOMER : Sdr. Sholikin
 FURNACE : YG2827C02/82
 OPERATOR : WENDY
 DATE / TIME : 28-JUL-2020 14:48:48
 TASK : Conc_Fei METHOD : FEGLFE

	Fe%	S	Al	C	Ni	Nb	Si
1	90.9637	0.0389	1.1500	4.9966	0.1041	-0.0009	1.8540
2	91.3271	0.0365	1.1892	4.5563	0.1056	-0.0004	1.8332
AVG	91.1454	0.0377	1.1696	4.7764	0.1049	-0.0006	1.8686
<i>SD</i>	<i>0.25694</i>	<i>0.00172</i>	<i>0.02776</i>	<i>0.31138</i>	<i>0.00106</i>	<i>0.00039</i>	<i>0.02071</i>
<i>SD%</i>	<i>0.28</i>	<i>4.56</i>	<i>2.37</i>	<i>6.52</i>	<i>1.01</i>	<i>62.02</i>	<i>1.11</i>

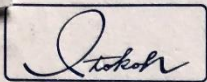
	Cr	V	Mn	Mo	W	P	Cu
1	0.1289	0.0126	0.4792	0.0114	0.0001	0.0810	0.1468
2	0.1306	0.0127	0.4807	0.0118	0.0001	0.0823	0.1490
AVG	0.1297	0.0126	0.4799	0.0116	0.0001	0.0817	0.1479
<i>SD</i>	<i>0.00124</i>	<i>0.00004</i>	<i>0.00105</i>	<i>0.00027</i>	<i>0.00000</i>	<i>0.00093</i>	<i>0.00156</i>
<i>SD%</i>	<i>0.95</i>	<i>0.33</i>	<i>0.22</i>	<i>2.35</i>	<i>0.00</i>	<i>1.13</i>	<i>1.06</i>

	Ti	N	B	Pb	Sb	Ca	Mg
1	0.0165	0.0001	0.0016	0.0017	0.0024	0.0004	0.0001
2	0.0166	0.0001	0.0016	0.0016	0.0033	0.0002	0.0001
AVG	0.0166	0.0001	0.0016	0.0016	0.0029	0.0003	0.0001
<i>SD</i>	<i>0.00010</i>	<i>0.00000</i>	<i>0.00001</i>	<i>0.00010</i>	<i>0.00066</i>	<i>0.00013</i>	<i>0.00000</i>
<i>SD%</i>	<i>0.59</i>	<i>0.00</i>	<i>0.55</i>	<i>6.08</i>	<i>23.02</i>	<i>39.74</i>	<i>0.00</i>

	Zn	Co
1	0.0107	0.0064
2	0.0104	0.0066
AVG	0.0106	0.0065
<i>SD</i>	<i>0.00017</i>	<i>0.00013</i>
<i>SD%</i>	<i>1.57</i>	<i>2.00</i>



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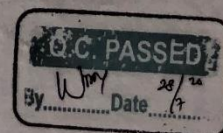
COMPANY : PT. ITOKOH CEPERINDO
 SAMPLE NAME : campuran al 7
 CUSTOMER : Sdr. Sholikin
 FURNACE : YG2827C02/80
 OPERATOR : WENDY
 DATE / TIME : 28-JUL-2020 14:41:11
 TASK : Conc_Fei METHOD : FEGLFE

	Fe	S	Al	C	Ni	Nb	Si
1	88.0471	0.0400	2.6752	6.2097	0.1095	-0.0011	2.1030
2	86.8681	0.0355	2.5676	7.6309	0.1081	-0.0016	2.0290
AVG	87.4576	0.0377	2.6214	6.9203	0.1088	-0.0014	2.0660
<i>SD</i>	<i>0.63361</i>	<i>0.00316</i>	<i>0.07611</i>	<i>1.00499</i>	<i>0.00098</i>	<i>0.00029</i>	<i>0.05230</i>
<i>SD%</i>	<i>0.95</i>	<i>8.36</i>	<i>2.90</i>	<i>14.52</i>	<i>0.90</i>	<i>21.58</i>	<i>2.53</i>

	Cr	V	Mn	Mo	W	P	Cu
1	0.1445	0.0107	0.4332	0.0154	0.0001	0.0368	0.1380
2	0.1373	0.0098	0.4209	0.0134	0.0001	0.0267	0.1333
AVG	0.1409	0.0102	0.4270	0.0144	0.0001	0.0317	0.1356
<i>SD</i>	<i>0.00512</i>	<i>0.00064</i>	<i>0.00875</i>	<i>0.00142</i>	<i>0.00000</i>	<i>0.00718</i>	<i>0.00336</i>
<i>SD%</i>	<i>3.63</i>	<i>6.25</i>	<i>2.05</i>	<i>9.86</i>	<i>0.00</i>	<i>22.62</i>	<i>2.48</i>

	Ti	N	B	Pb	Sb	Ca	Mg
1	0.0146	0.0144	0.0016	0.0039	0.0086	0.0014	0.0001
2	0.0130	0.0128	0.0015	0.0048	0.0069	0.0011	0.0001
AVG	0.0138	0.0136	0.0016	0.0043	0.0078	0.0012	0.0001
<i>SD</i>	<i>0.00113</i>	<i>0.00107</i>	<i>0.00006</i>	<i>0.00067</i>	<i>0.00117</i>	<i>0.00019</i>	<i>0.00000</i>
<i>SD%</i>	<i>8.18</i>	<i>7.86</i>	<i>3.84</i>	<i>15.42</i>	<i>15.08</i>	<i>15.29</i>	<i>0.00</i>

	Zn	Co
1	0.0209	0.0061
2	0.0155	0.0058
AVG	0.0182	0.0059
<i>SD</i>	<i>0.00377</i>	<i>0.00021</i>
<i>SD%</i>	<i>20.72</i>	<i>3.45</i>



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Hasil Pengujian Impak



LABORATORIUM BAHAN TEKNIK
DEPARTEMEN TEKNIK MESIN SEKOLAH VOKASI
UNIVERSITAS GADJAH MADA

HASIL PENGUJIAN IMPAK
No. 295 / P.Imp / BT.DTM.SV.UGM / 2020

Spesimen Baja Paduan Fe-Al-Si, Variasi Prosentase Aluminium.

No.	Kode	Sudut α (°)	Energi Terpasang (J)	Sudut β (°)	Energi Terserap (J)	Luas (mm ²)	Harga Impact (J/mm ²)
1	Std.Pabrik	151,0	300	148,00	4,3	82,49	0,052
2	2,5% Al	151,0	300	147,75	4,7	84,55	0,055
3	5% Al	151,0	300	148,00	4,3	83,06	0,052
4	7% Al	151,0	300	148,00	4,3	84,94	0,051

Keterangan :

1. Menggunakan metode Charpy
2. Panjang lengan ayun 0.8 meter, berat palu 20 kilogram
3. Luas yang dimaksud luas penampang patah
4. Pengujian dilakukan pada tanggal 21 Desember 2020.

Yogyakarta, 21 Desember 2020.
Ka Sub Laboratorium Bahan Teknik



Lilik Dwi Setyana ST., M.T.
NIP. 197703312002121002

Lembar asli, tidak untuk digandakan

Kampus : Jl. Grafika 2A Yogyakarta 55281

Hasil Pengujian Keausan



**LABORATORIUM BAHAN TEKNIK
DEPARTEMEN TEKNIK MESIN DAN INDUSTRI
FAKULTAS TEKNIK UNIVERSITAS GADJAH MADA
Jl. Grafika No.2, Kampus UGM Yogyakarta, 55281
Telp. (0274) 521673, Fax. (0274) 521673, Email : priyotri@ugm.ac.id**

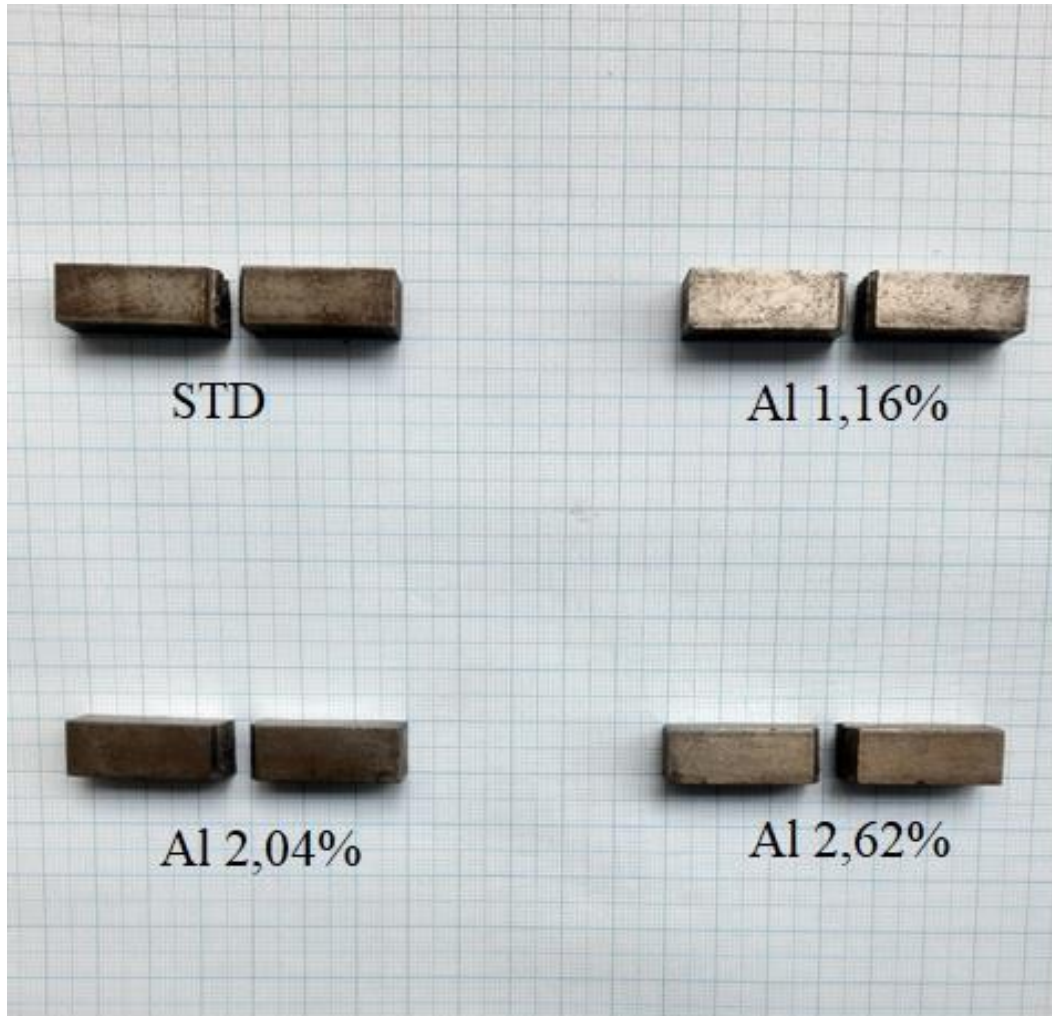
Nomor : 77/Lab. Bahan Teknik/DTMI/UGM/2020
Lamp :
Hal : Hasil Uji Keausan
Pemilik : Agil Surya Nusantara

Kode Spesimen	l ₀ (m)	P ₀ (kg)	B (mm)	r (mm)	b ₀ (mm)	W _s (mm ² /kg)	W _s x 10 ⁻⁴ (mm ² /kg)
STD	66,6	2,12	3	13,3	0,848302	0,001524623	1,52462E-07
P Al 5%	66,6	2,12	3	13,3	0,810658	0,001456967	1,45697E-07
P Al 2,5%	66,6	2,12	3	13,3	0,86179	0,001548865	1,54886E-07
P Al 7%	66,6	2,12	3	13,3	0,653962	0,001175343	1,17534E-07

Yogyakarta, 29 Desember 2020
Teknisi Laboratorium
Bahan Teknik UGM

Sriyanta
NIP. 197701012014091002

Spesimen Pengujian Impak



LAMPIRAN 5

Spesimen Pengujian Keausan

