

DAFTAR PUSTAKA

- Amirkhanlou, S. dkk. 2010. "Synthesis and characterization of 356-SiCp composites by stir casting and compocasting methods". Trans. Nonferrous Met. Soc. China 20 (2010) hal 788-793.
- Asruddin, S.T. 2019. pengaruh rod *feed rate* terhadap lapisan aluminium CNT komposit (AL+CNT) dengan *friction surfacing process* menggunakan mesin *drilling-milling* dan ketahanan aus lapisan AL+CNT.
- Al Amin, S.T. , M.T., 2018. OPTIMIZATION OF FRICTION SURFACING PARAMETER ON COATING CHARACTERISTICS USING ALUMINIUM AA6063 AND LOW CARBON MEDIUM.
- Autar,K. Kaw., (2006),"Mechanics of Composite Materials,University ofSouth Florida, Tampa.Taylor& Francis Group,hal 2
- Barnabas, Godwin. 2014. Parameters optimization in friction surfacing. Chemical and Materials Engineering 2(6): 127-136.
- Dewi, Mirnawati Dkk. 2016. (*Studi Mikrostruktur Dan Sifat Mekanik aluminium 6061 Melalui Proses Canai Dingin Dan Aging*,
- Esawi, A.M.K., Morsi, K., Sayed, A., Taher, M., Lanka, S., (2010), "Effect of carbon nanotube (CNT) content on the mechanical properties of CNT-reinforced aluminium composites", Composites Science and Technology 70, 2237-2241.
- Hatch, 1984, *Aluminium Properties and Physical Metallurgy*, ASM Internasional Ohio
- Hendry Wicaksana. 2016. Sifat Mekanik Dan Struktur Mikro Sambungan Las Aluminium 6061 Hasil Friction Welding
- Jishnu, J., Bhattacharyya, R. Mitra, (2012), "Effect of hot rolling temperature and thermal cycling on creep and damage behavior of powder metallurgy processed Al-SiC particulate composite", Materials Science & Engineering A, 1-14
- Kalken A.M.V, (2001), "Friction Surfacing of Stainless Steel on Mild Steel with a Robot", Delft University of Technology.
- KartamanA.Maman, (2010), "Fabrikasi Komposit Al/Al₂O₃(p) Coated DenganMetode Stir Casting Dan Karakterisasinya", University of Indonesia,8-35
- Maulana, Alif. 2012. Pengujian Keausan Komposit Aluminium Diperkuat Karbon Nanotube Dan Aluminium Diperkuat Silikon Karbida

- McKelvey, J. P. 1986. "Solid State And Semiconductor Physics". Robert E. Kriger Publishing Company, Inc, Florida, pp.4
- Mujiyo, M. N. (2014). Analisis Kekuatan Fatik Aluminium Cor (REMELTING) dengan Tipe Rotary Bending
- Mirnawati Dewi, dkk. 2007. *Studi Mikrostruktur dan Sifat Mekanik Aluminium 6061 Melalui Proses Canai Dingin dan Aging*. Universitas Sultan Ageng Tritayasa. Banten
- Mulyawan, Ade. Dkk. 2104 Pemanfaatan Multiwalled Nanotubes (Mwnt) Dipadu Nife₂o₄ Sebagai Filler Nanokomposit Lapisan Tipis Sebagai Bahan Sensor
- Nurhudaeda, S.T. 2019. Pengaruh *travel speed* terhadap lapisan aluminium CNT komposit (AL+CNT) dengan *friction surfacing process* menggunakan mesin *drilling-milling* dan ketahanan aus lapisan AL+CNT
- Nimbulkar, S. L., dan Dalu, R. S. (2016). Design optimization of gating and feeding system through simulation technique for sand casting of wear plate. *Perspectives in Science*, 8, 39–42. <https://doi.org/10.1016/j.pisc.2016.03.001>
- Pratiwi, Diah Kusuma. 2012. *Hubungan jenis cetakan terhadap kualitas produk cor aluminium*. Universitas Gadjah Mada. Yogyakarta.
- Pancatativa Hesti Gunawan, Rosalina. 2016. "Uji Mekanik Material Struktur Aluminium Tangki Reaktor untuk Menentukan Keandalan Operasionalnya".
- Rabinowicz, E. (1995) *Friction and Wear of Materials*. John Wiley and Sons, New York.
- Robinson, M., Carruthers, J., Gibson, G. (2005). The future use of composite materials in the rail industry. *Railway Strategies*, MAY-JUNI(30), 81–83
- Resselhaus, and morinobu endo. 2003. *Carbon fibers and carbon nanotubes*. Massachusetts institute of technology, shinshu university, nagano. Japan.
- Rui, Zhang. *Sintering Behavior of CNT Reinforced Al6061 and Al2124 Nanocomposites*. 2014.
- Surdia, T.; Saito, S., 1992, *Pengetahuan Bahan Teknik*, PT. Pradnya Paramita, Jakarta
- Suprianto T., Adinugroho, W.C., A.I Andry, H.S. dan Arifin. S.A. 2011. *Kontribusi Sistem Agroforestry Terhadap Cadangan Karbon Di Hulu DAS Kali Bekasi*. Tesis. Institut Pertanian Bogor. Bogor

- Shinoda T., Yashiro T., Katoh T., 1998, Effect of process parameters during friction coating on properties of non-dilution coating layers, High Temperature Society of Japan, 705.
- Smallman, R. E and Bishop, R. J. 2000. *Metalurgi Fisik Modern & Rekayasa Material (Edisi Keenam)*, Erlangga. Jakarta.
- Subagyo, Nur Imam. 2017. *Analisis Pengaruh Artificial Aging Terhadap Sifat Mekanis Pada Aluminium Seri 6061*. Universitas Lampung. Bandar Lampung.
- Suhartono, Gandung G. 2017. “Studi Eksperimental Pengaruh Bentuk Pin Contact Surfacerhadap Keausan Dan Volume Aus Pada Pengujian Reciprocating Tribometer”.
- Trijati, Lukfawan. 2008. Mekanisme Fading pada Aluminium-Silikon. lib.ui.ac.id file > 125056-R040873-Mekanisme fading-Literatur hal: 9
- Utomo, Rochmad Eko Prasetyaning, dkk. 2016. “Pengaruh Magnesium Terhadap Kekerasan Dan Ketahanan Aus Komposit Aluminium 6061/Nano-Al₂O₃ dengan Metode Stir Casting”. Departemen Teknik Mesin dan Industri Fakultas Teknik Universitas Gadjah Mada.
- Wibowo, Andrea Tri dkk. 2014. *Pengaruh Heat Treatment T6 Pada Aluminium Alloy 6061-O dan Pengelasan Transversal Tungsten Inert Gas Terhadap Sifat Mekanik dan Struktur Mikro* 4 (2): 374-381.

LAMPIRAN

Tabel A.1

Tabel uji kekerasan rod AL+CNT dan AL+C

NO	JENIS	KEKERASAN (HV)			RATA-RATA
1	Rod AL+CNT 0,5%	42.9	43,5	42,1	42,9
2	Rod AL+CNT 1%	43.1	44.9	44.7	44,4
3	Rod AL+CNT 1,5%	45	45.6	45.1	45,7
4	Rod AL+C 0,5%	40.8	39.7	40,5	40,3
5	Rod AL+C 1%	41.7	44.6	43.9	43,7
6	Rod AL+C 1,5%	44.9	44.6	44.8	44,8

Tabel A.2

Tabel uji kekerasan lapisan AL+CNT dan AL+C

NO	JENIS	KEKERASAN (HV)			RATA-RATA
1	Lapisan AL+CNT 0,5%	42.4	43.2	41.5	42,3
2	Lapisan AL+CNT 1%	43.8	44.5	41.3	43,2
3	Lapisan AL+CNT 1,5%	45.1	45.5	45.3	45,4
4	Lapisan AL+C 0,5%	42.3	41.2	43.5	42,3
5	Lapisan AL+C 1%	43.2	41.6	42.4	42,6
6	lapisan AL+C 1,5%	43.4	43.7	42.5	43,2

Tabel A.3

Uji keausan lapisan AL+CNT

No.	Waktu Lintasan	Absolute Mass Wear m (mg)
1	50	17
2	50	15
3	50	9
	Rata-Rata	41

Tabel A.4

Uji keausan lapisan AL+C

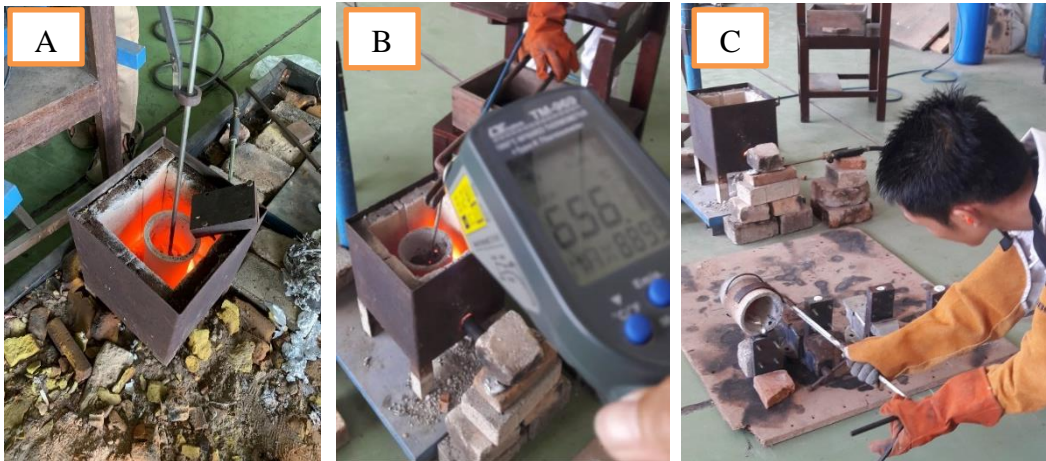
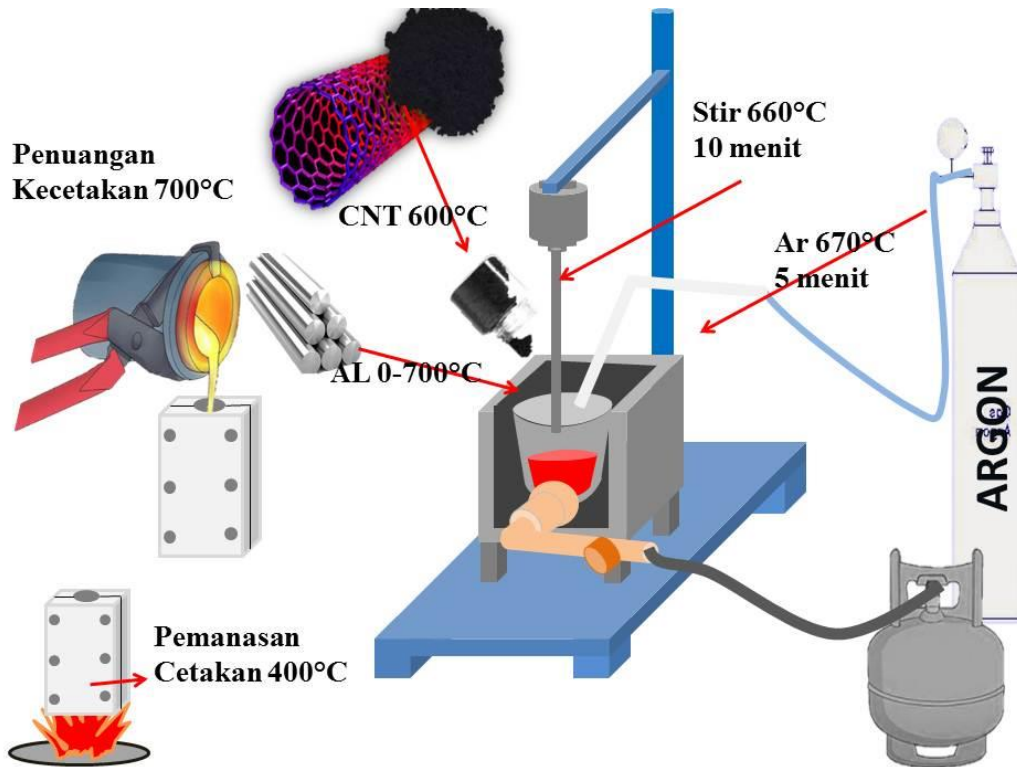
No.	Waktu Lintasan	Absolute Mass Wear m (mg)
1	50	23
2	50	16
3	50	18
	Rata-Rata	57

LAMPIRAN II

FOTO KEGIATAN PENELITIAN

Gambar B.1

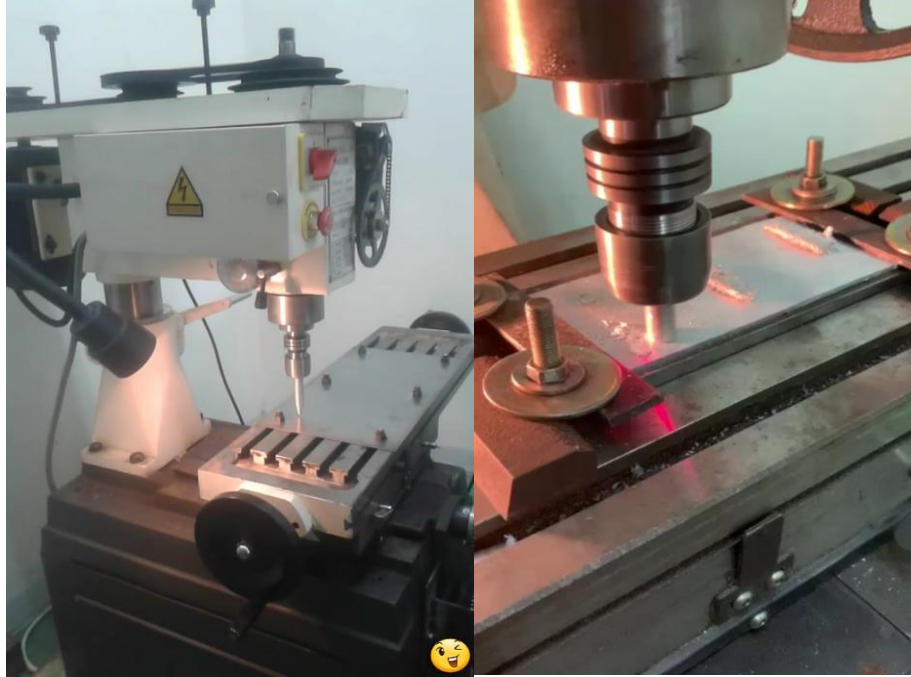
Proses pengecoran spesimen



(a) pengadukan (b) pengukuran suhu (c) proses penuangan

Gambar B.2

Proses *friction surfacing*

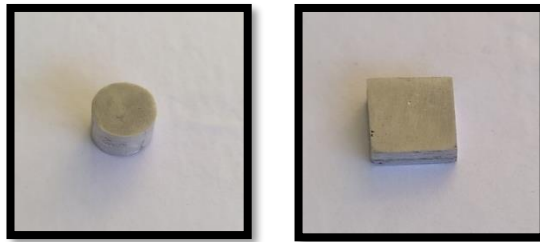


Gambar B.3

Alat uji kekerasan vickers dan spesimen uji



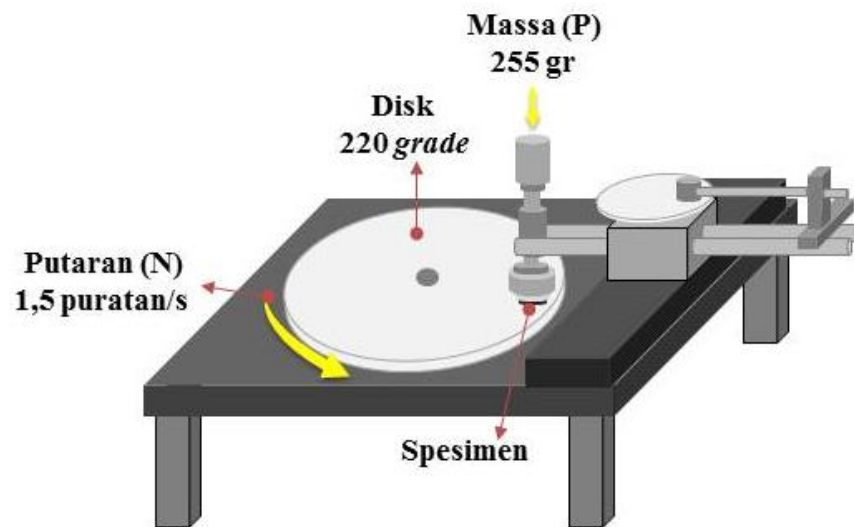
alat uji kekerasan Vickers



Spesimen uji

Gambar B.4

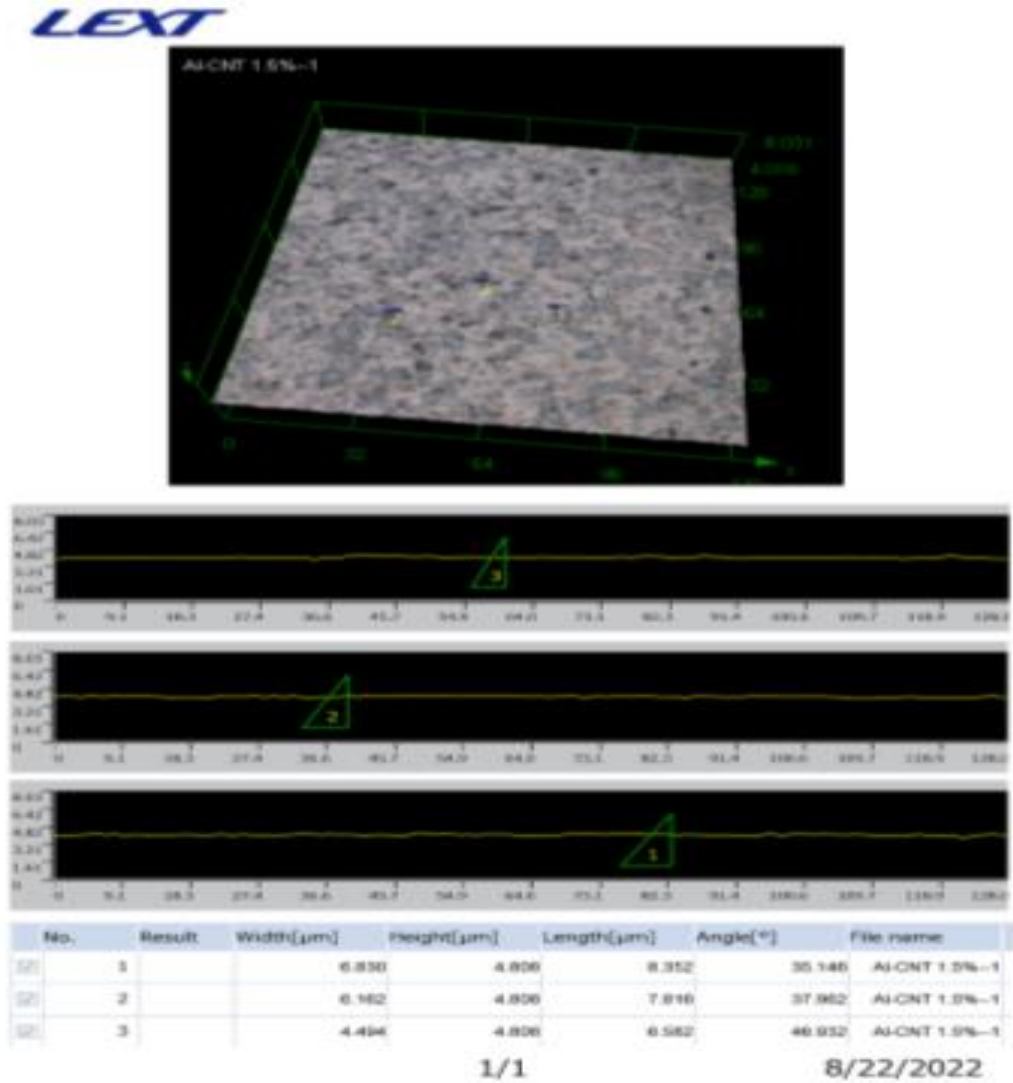
Uji keausan



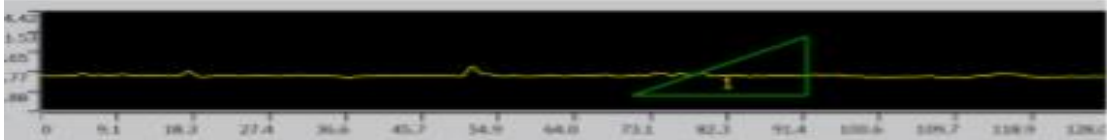
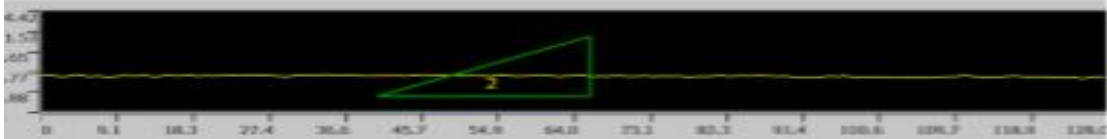
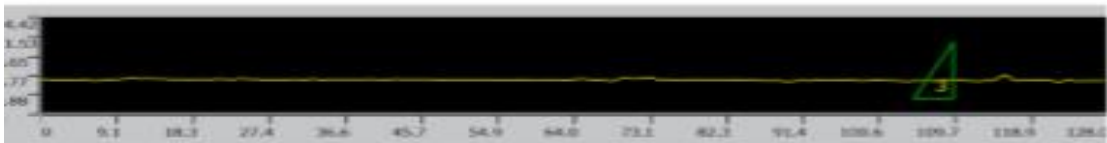
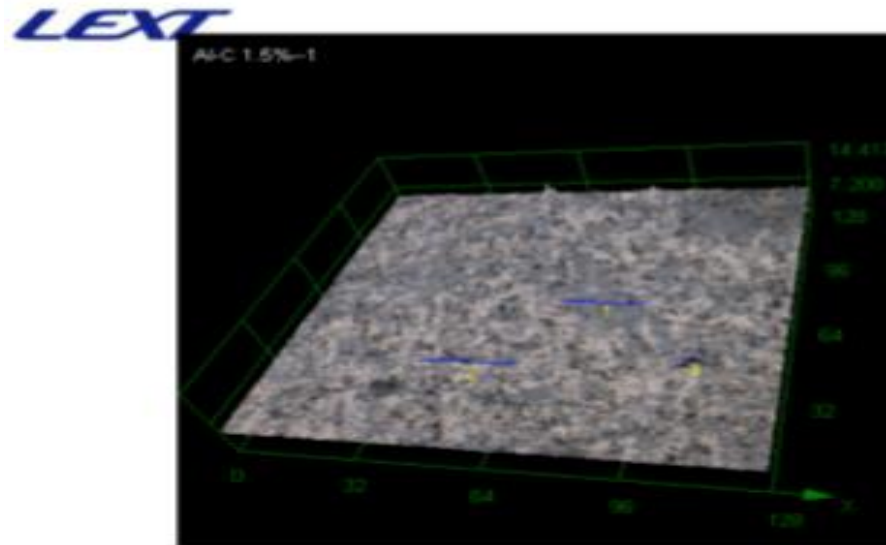
proses pengujian keausan

Gambar B.5

Hasil uji struktur mikro AL+CNT 1,5%



Hasil uji mikro AL+karbon 1,5%



No.	Result	Width[μm]	Height[μm]	Length[μm]	Angle[$^\circ$]	File name
25	1		21.008	8.631	22.712	22.336 A/C 1.5%-1
25	2		25.679	8.631	27.091	18.579 A/C 1.5%-1
25	3		4.828	8.631	9.890	60.779 A/C 1.5%-1

1/1

8/22/2022