

## LAMPIRAN

### A. DATA KEKERASAN

<i>Quenching Brine Water 800<sup>0</sup>C</i>			
x	Y	Rata-rata	BHN
1,228	1,237	1,2325	158,578
1,214	1,254	1,234	158,158
1,197	1,225	1,211	164,789
1,264	1,266	1,265	149,821
1,27	1,268	1,269	148,792
			<b>156,027</b>
			<b>Kekerasan Rata-rata</b>
<i>Quenching Brine Water 900<sup>0</sup>C</i>			
x	Y	Rata-rata	BHN
1,039	1,044	1,0415	229,208
1,064	1,062	1,063	219,152
1,044	1,061	1,0525	223,979
1,039	1,024	1,0315	234,12
1,039	1,019	1,029	235,373
			<b>228,367</b>
			<b>Kekerasan Rata-rata</b>
<i>Quenching Brine Water 1000<sup>0</sup>C</i>			
x	Y	Rata-rata	BHN
1,143	1,136	1,1395	188,216
1,151	1,142	1,1465	185,714
1,164	1,139	1,1515	183,956
1,134	1,147	1,1405	187,856
1,144	1,148	1,146	185,891
			<b>186,326</b>
			<b>Kekerasan Rata-rata</b>

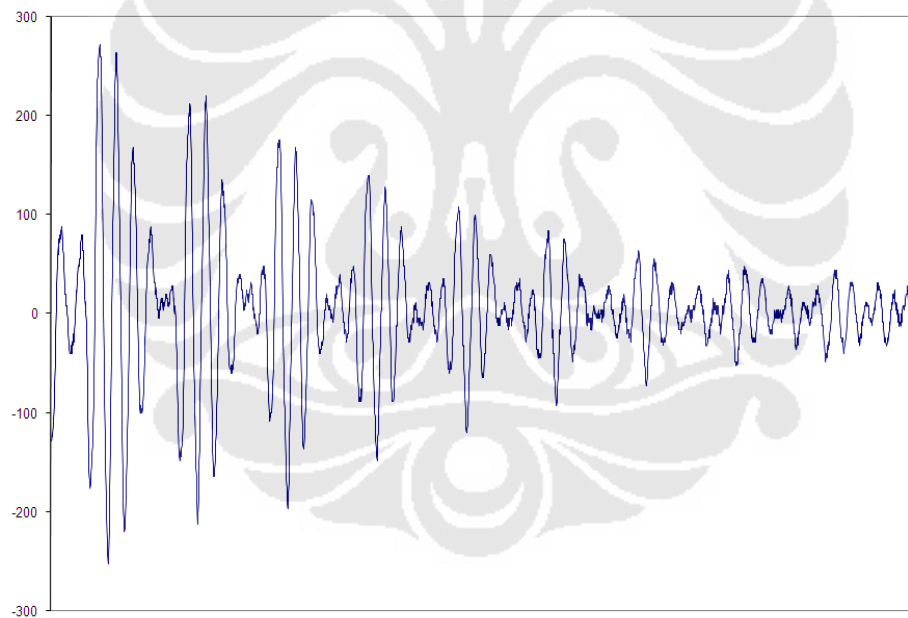
<i>Quenching Brine Water 1100<sup>0</sup>C</i>			
<b>x</b>	<b>Y</b>	<b>Rata-rata</b>	<b>BHN</b>
1,189	1,155	1,172	176,999
1,177	1,182	1,1795	174,55
1,172	1,171	1,1715	177,164
1,185	1,158	1,1715	177,164
1,184	1,151	1,1675	178,492
			<b>176,873</b>
<b>Kekerasan Rata-rata</b>			
<i>Quenching Air 800<sup>0</sup>C</i>			
<b>x</b>	<b>Y</b>	<b>Rata-rata</b>	<b>BHN</b>
1,28	1,272	1,276	147,016
1,271	1,253	1,262	150,599
1,28	1,26	1,27	148,536
1,281	1,266	1,2735	147,646
1,271	1,212	1,2415	156,08
			<b>149,975</b>
<b>Kekerasan Rata-rata</b>			
<i>Quenching Air 900<sup>0</sup>C</i>			
<b>x</b>	<b>Y</b>	<b>Rata-rata</b>	<b>BHN</b>
1,137	1,171	1,154	183,086
1,13	1,129	1,1295	191,879
1,126	1,137	1,1315	191,138
1,155	1,189	1,172	176,999
1,181	1,165	1,173	176,669
			<b>183,954</b>
<b>Kekerasan Rata-rata</b>			

<i>Quenching Air 1000<sup>0</sup>C</i>			
<b>x</b>	<b>Y</b>	<b>Rata-rata</b>	<b>BHN</b>
1,177	1,151	1,164	179,667
1,189	1,155	1,172	176,999
1,184	1,175	1,1795	174,55
1,184	1,181	1,1825	173,584
1,178	1,176	1,177	175,36
			<b>176,032</b>
			<b>Kekerasan Rata-rata</b>
<i>Quenching Air 1100<sup>0</sup>C</i>			
<b>x</b>	<b>Y</b>	<b>Rata-rata</b>	<b>BHN</b>
1,206	1,165	1,1855	172,626
1,207	1,184	1,1955	169,489
1,203	1,155	1,179	174,711
1,229	1,194	1,2115	164,64
1,213	1,183	1,198	168,718
			<b>170,037</b>
			<b>Kekerasan Rata-rata</b>

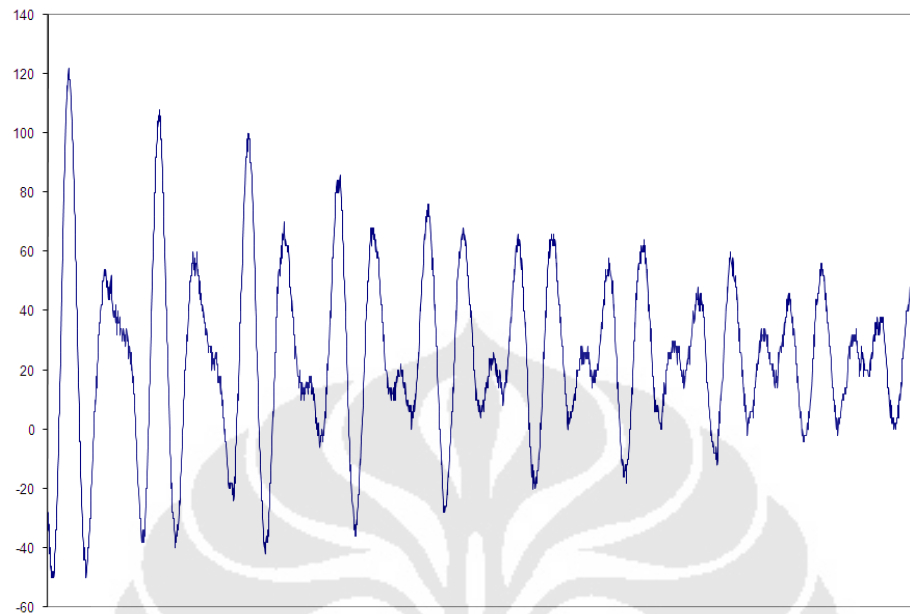
## B. DATA KECEPATAN

<b>Perlakuan</b>	<b>Kecepatan di frekuensi 2,25 MHz (m/s)</b>	<b>Kecepatan di frekuensi 5 MHz (m/s)</b>
<i>Quenching brine water 800<sup>0</sup>C</i>	5909,844044	5886,562568
<i>Quenching brine water 900<sup>0</sup>C</i>	6341,449748	6285,088998
<i>Quenching brine water 1000<sup>0</sup>C</i>	5945,292418	5921,392103
<i>Quenching brine water 1100<sup>0</sup>C</i>	5932,970192	5917,830428
<i>Quenching air 800<sup>0</sup>C</i>	5880,696796	5867,212292
<i>Quenching air 900<sup>0</sup>C</i>	5969,730498	5967,567618
<i>Quenching air 1000<sup>0</sup>C</i>	5921,460867	5912,652175
<i>Quenching air 1100<sup>0</sup>C</i>	5914,529587	5893,805553

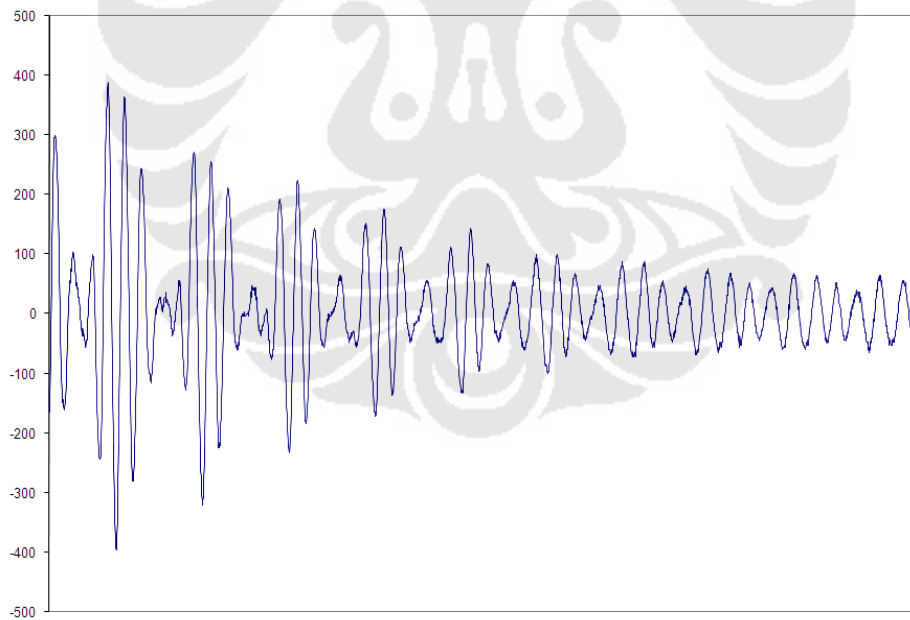
### C.1 QUENCHING AIR 800<sup>0</sup>C-FREKUENSI 5 MHz



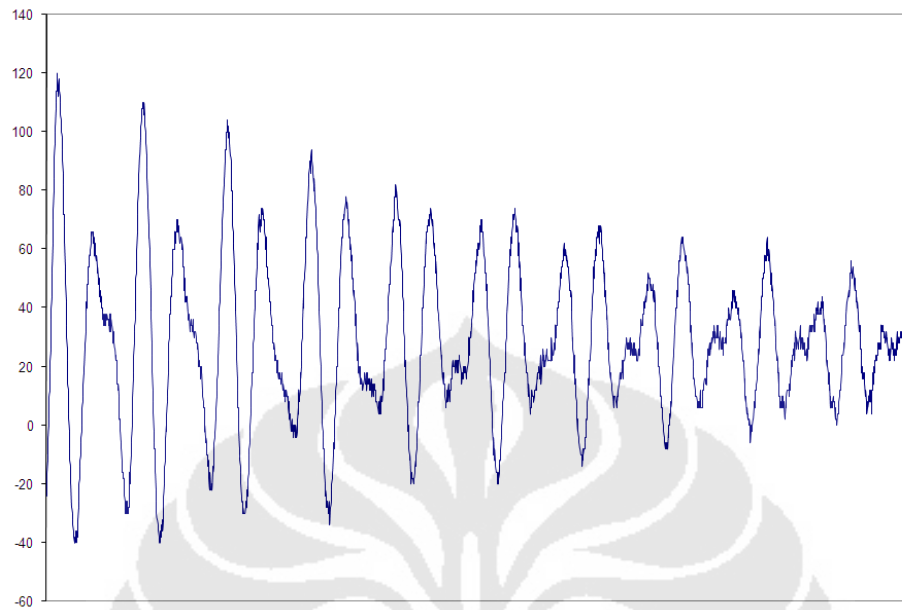
### C.2. QUENCHING AIR 800<sup>0</sup>C-FREKUENSI 2,25 MHz



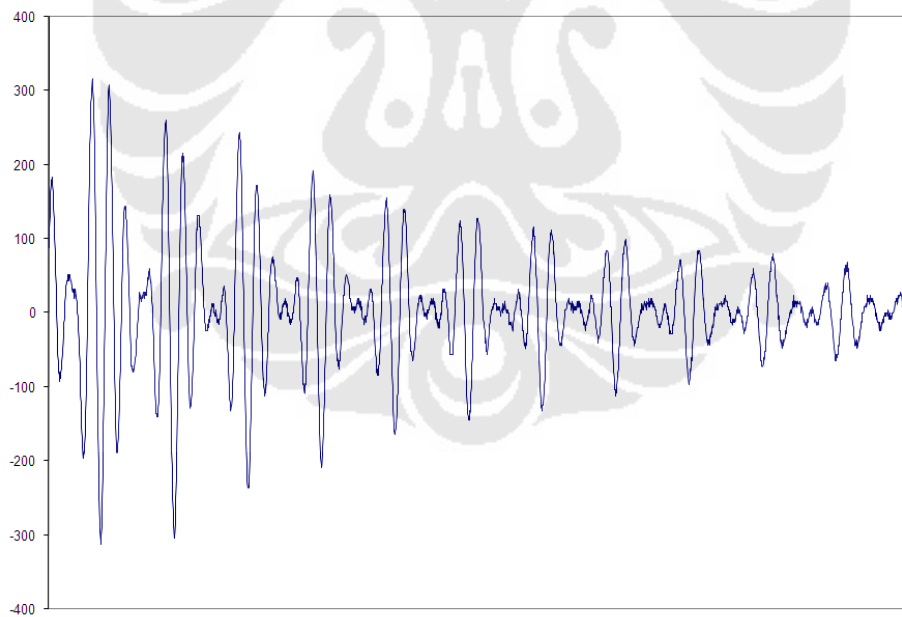
### C.3. QUENCHING AIR 900<sup>0</sup>C-FREKUENSI 5 MHz



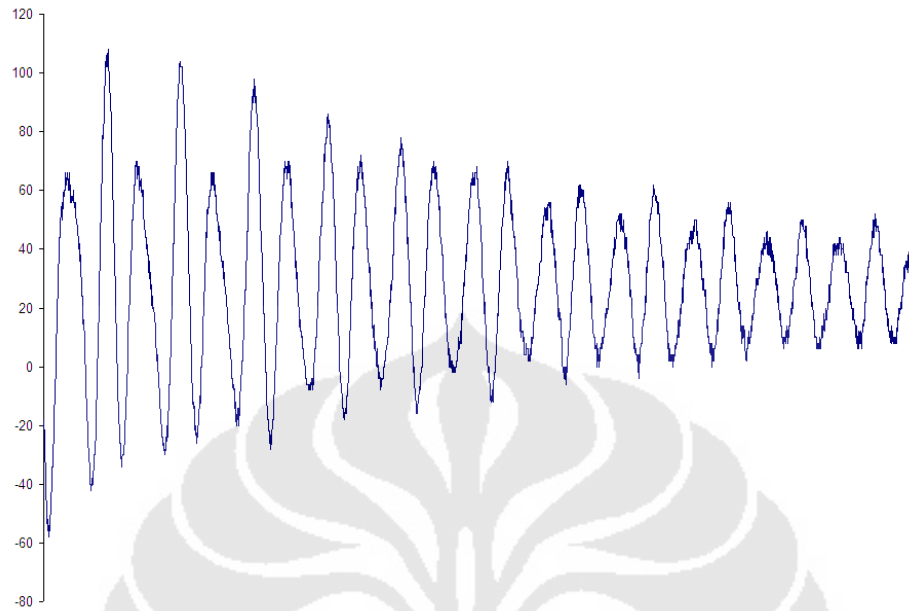
**C.4. QUENCHING AIR 900<sup>0</sup>C-FREKUENSI 2,25 MHz**



**C.5. QUENCHING AIR 1000<sup>0</sup>C-FREKUENSI 5 MHz**



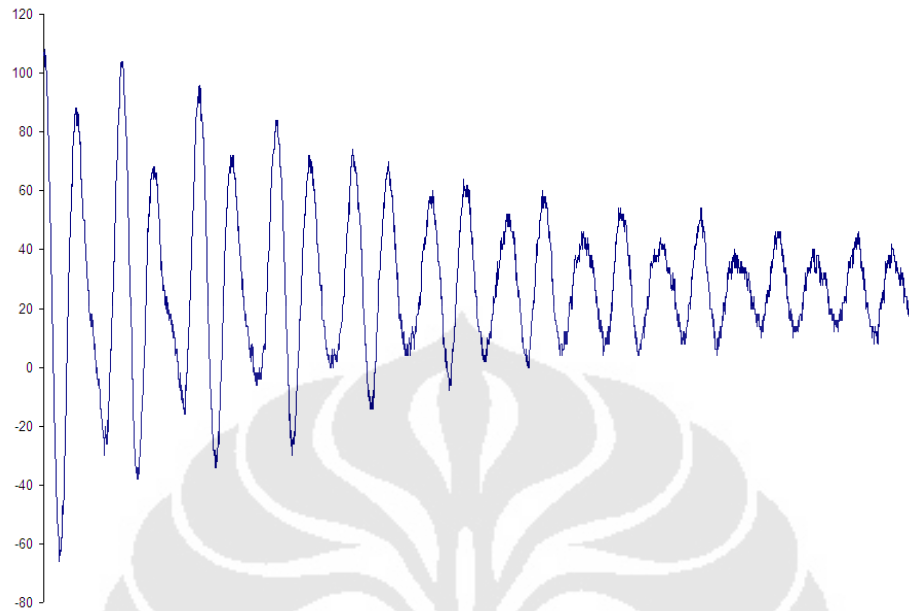
**C.6. QUENCHING AIR 1000<sup>0</sup>C-FREKUENSI 2,25 MHz**



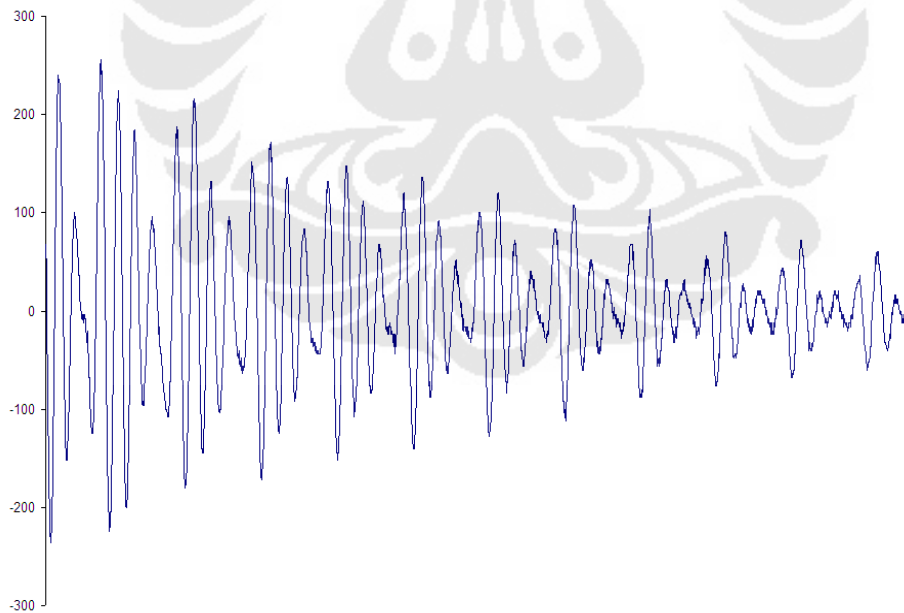
**C.7. QUENCHING AIR 11000C-FREKUENSI 5 MHz**



**C.8. QUENCHING AIR 1100<sup>0</sup>C-FREKUENSI 2,25 MHz**

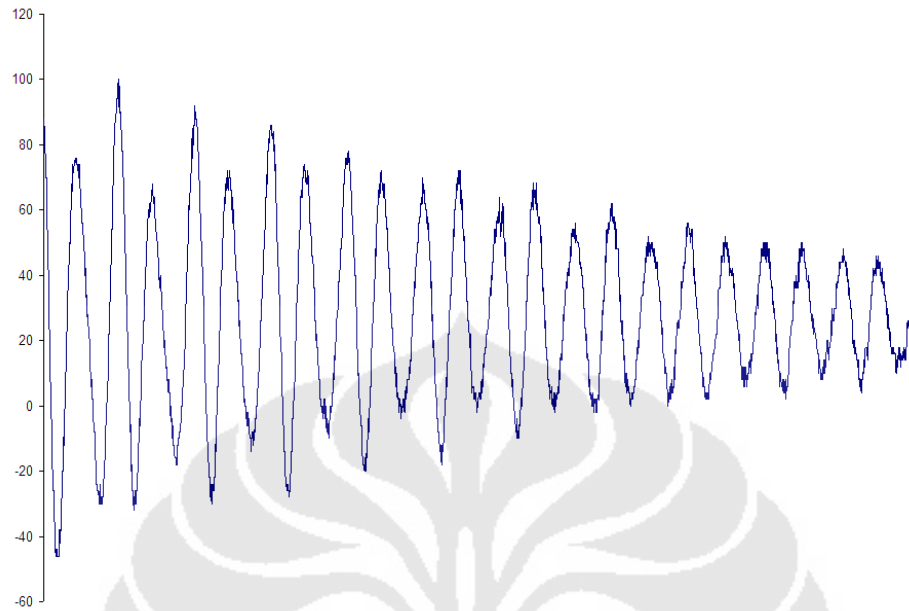


**C.9. QUENCHING BRINE WATER 800<sup>0</sup>C-FREKUENSI 5 MHz**

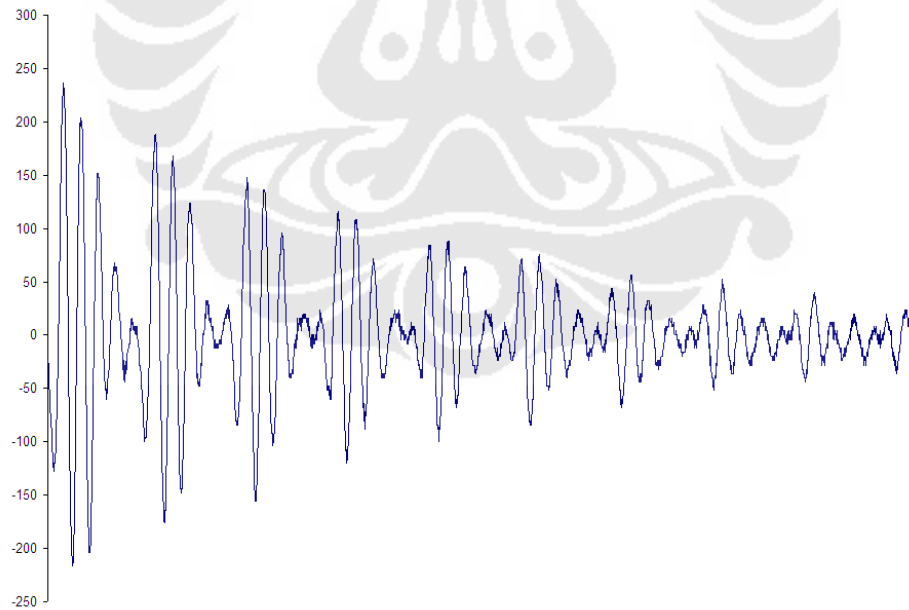




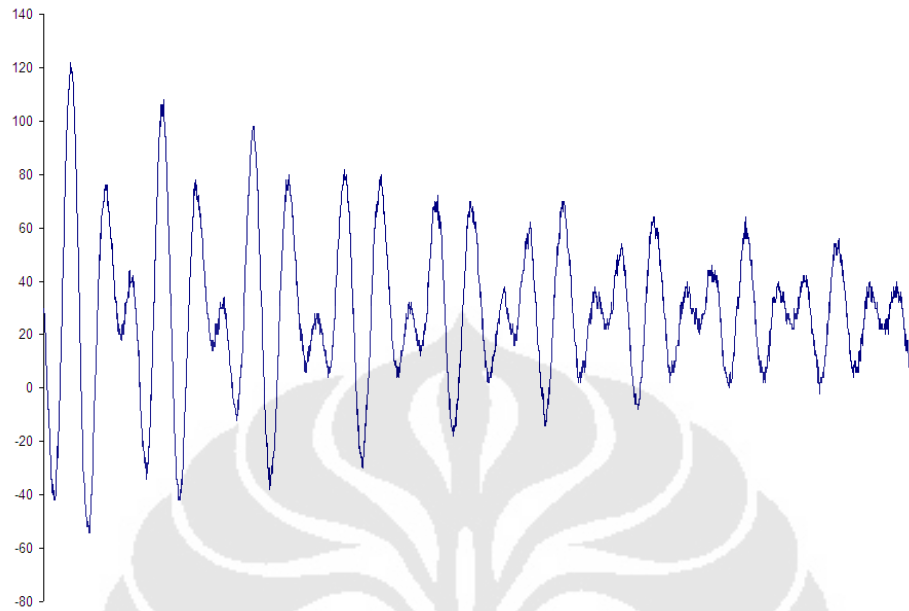
**C.10. QUENCHING BRINE WATER 800<sup>0</sup>C-FREKUENSI 2,25 MHz**



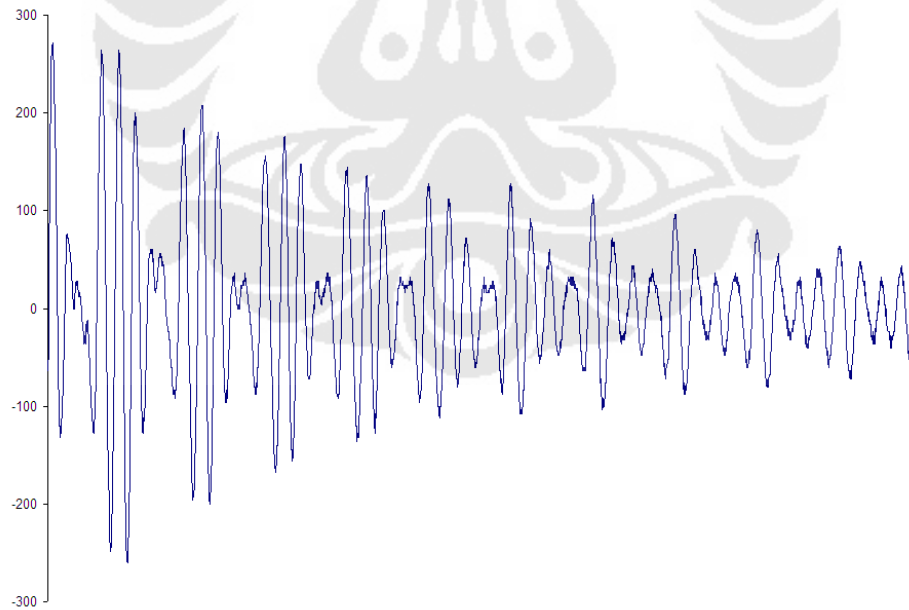
**C.11. QUENCHING BRINE WATER 900<sup>0</sup>C-FREKUENSI 5 MHz**



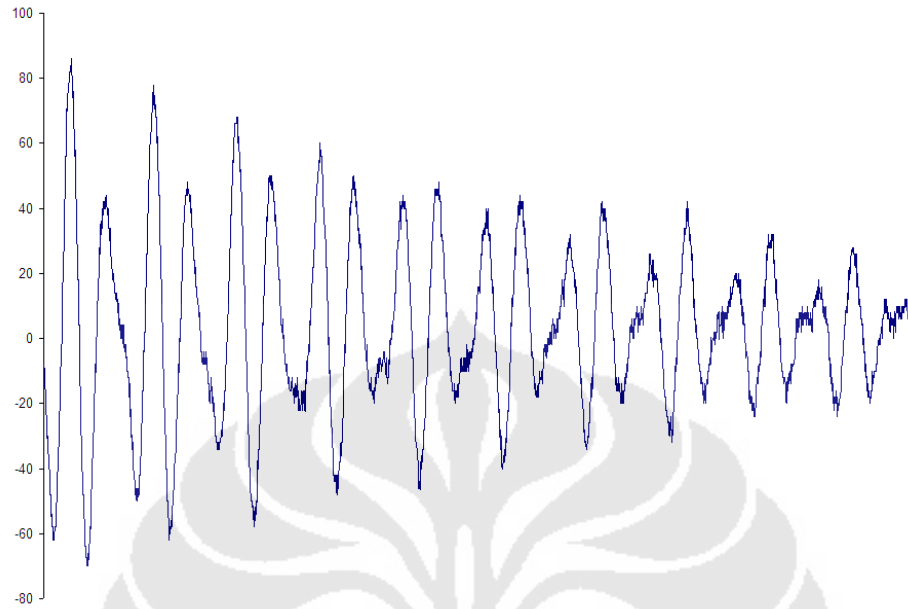
**C.12. QUENCHING BRINE WATER 900<sup>0</sup>C-FREKUENSI 2,25 MHz**



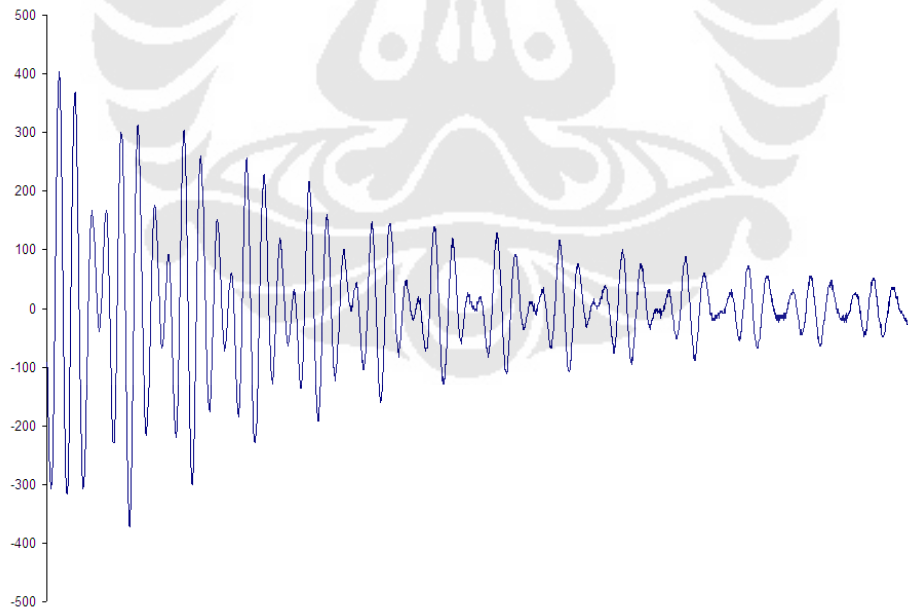
**C.13. QUENCHING BRINE WATER 1000<sup>0</sup>C-FREKUENSI 5 MHz**



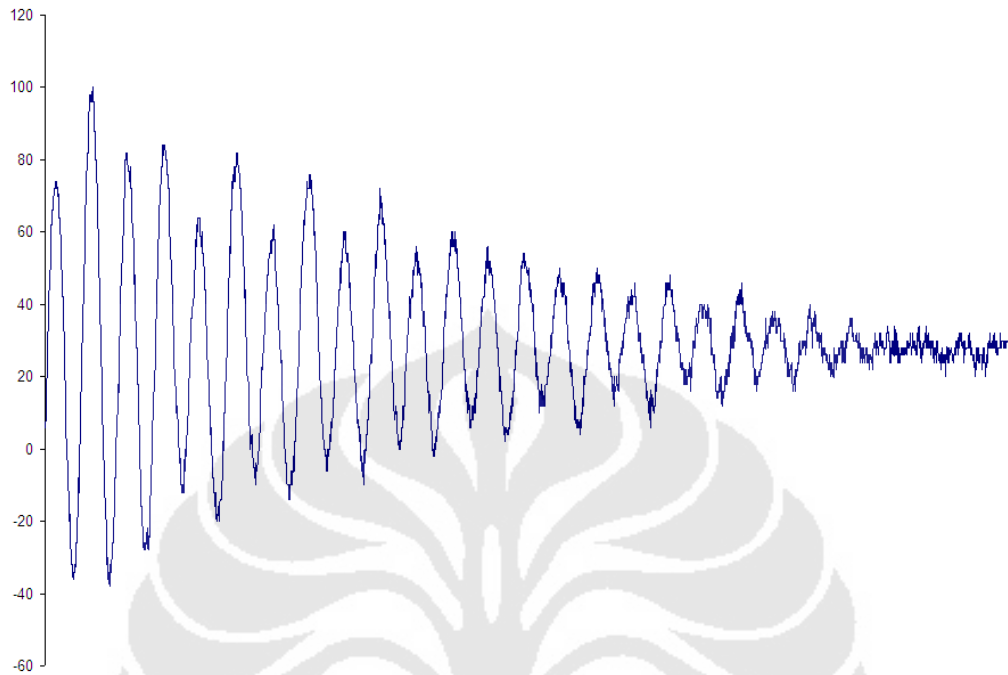
**C.14. QUENCHING BRINE WATER 1000<sup>0</sup>C-FREKUENSI 2,25 MHz**



**C.15. QUENCHING BRINE WATER 1100<sup>0</sup>C-FREKUENSI 5 MHz**



**C.16. QUENCHING BRINE WATER 1100<sup>0</sup>C-FREKUENSI 2,25 MHz**

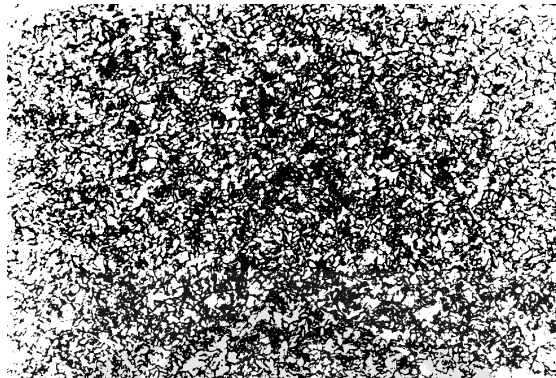


**D. DATA MIKROSTRUKTUR**

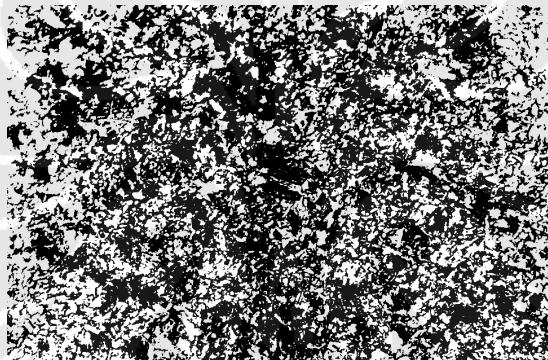
<b>Black Count</b>	<b>White Count</b>	<b>% Black</b>	<b>% White</b>	<b>Perlakuan</b>
336473	316557	51,52	48,48	<i>Quenching brine water 900<sup>0</sup>C</i>
361005	258201	58,3	41,7	<i>Quenching brine water 1000<sup>0</sup>C</i>
421011	232684	64,4	35,6	<i>Quenching brine water 1100<sup>0</sup>C</i>
289518	360222	44,56	55,44	<i>Quenching air 900<sup>0</sup>C</i>
315549	296521	51,55	48,45	<i>Quenching air 1000<sup>0</sup>C</i>
366633	245811	59,86	40,14	<i>Quenching air 1100<sup>0</sup>C</i>

**E. HASIL IMAGE TOOLS**

***QUENCHING AIR 900<sup>0</sup>C***



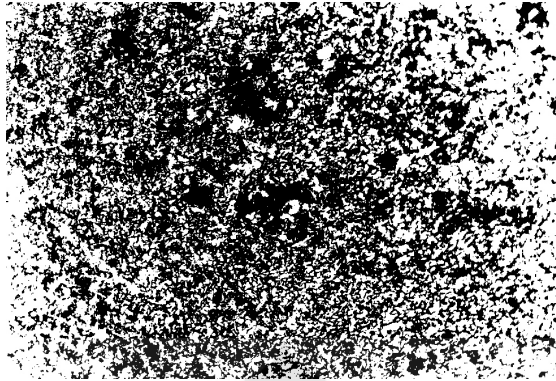
***QUENCHING AIR 1000<sup>0</sup>C***



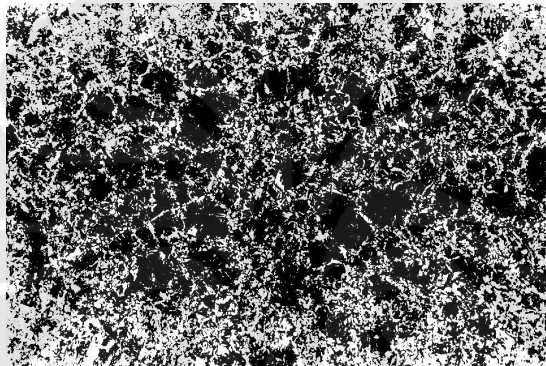
***QUENCHING AIR 1100<sup>0</sup>C***



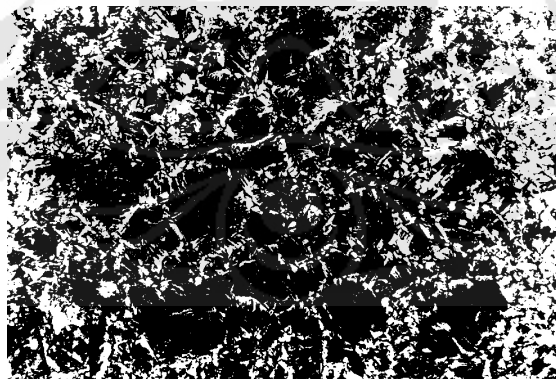
*QUENCHING BRINE WATER 900<sup>0</sup>C*



*QUENCHING BRINE WATER 1000<sup>0</sup>C*



*QUENCHING BRINE WATER 1100<sup>0</sup>C*



<b>Perlakuan</b>	<b>Besar Butir</b>	<b>N1</b>	<b>N2</b>	<b>M</b>	<b>F</b>	<b>Na</b>
<i>Quenching brine water 900C</i>	6,7436968	177	50	10000	2	404
<i>quenching brine water 1000C</i>	6,3539821	367	94	10000	2	828
<i>quenching brine water 1100C</i>	5,7083989	278	76	10000	2	632
<i>quenching air 900C</i>	6,6519786	179	80	10000	2	438
<i>quenching air 1000C</i>	6,3169871	347	83	10000	2	777
<i>quenching air 1100C</i>	5,824977	269	78	10000	2	616

#### **F. DATA ATENUASI**

<b>Perlakuan</b>	<b>Frekuensi 5 MHz</b>	<b>Frekuensi 2,25 MHz</b>
<i>quenching brine water 800°C</i>	2,5091887	0,674513091
<i>quenching brine water 900°C</i>	3,471617242	0,692923603
<i>quenching brine water 1000°C</i>	2,692592021	0,697478656
<i>quenching brine water 1100°C</i>	5,08955559	0,827052783
<i>quenching air 800°C</i>	1,166737383	0,595274175
<i>quenching air 900°C</i>	1,957069075	0,668871709
<i>quenching air 1000°C</i>	2,356523103	0,683682629
<i>quenching air 1100°C</i>	4,943082915	0,714862888

G. SERTIFIKAT

PT KRAKATAU STEEL (PERSERO)

MILL CERTIFICATE

PURCHASER : BAKRIE PIPE INDUSTRIES, PT.  
 J.L. RAYA SEKASJ KM.27 PONDOK JENEB  
 JAKARTA

COMMODITY : PRIME NEWLY PRODUCED HOT ROLLED  
 STEEL IN COIL MILL EDGE

SPECIFICATION : JIS G 3101 SS400

LC. NO. :  
 CERTIFICATE NO. : B.370490325027/MC/24/111/08  
 DATE : MARCH 17, 2008  
 LOT. NO.  
 DELIVERY DRG. NO. :  
 SUPPLIER ORD. NO. :  
 ORDER NUMBER : 3704903

PAGE : 001 OF 001

HEAT NO.	SLAB NO.	COIL NO.	TEST NO.	DIMENSION	QTY (MT)	CHEMICAL COMPOSITION X100(X)						TENSILE TEST			ZEMC TEST
						C	SI	MN	P	S	AL	YS (N/IN)	TS (N/IN)	EL (X)	
0511821	78091558432	2-BOX 963XC01L	558431	2-BOX 963XC01L	1114.2	23.9	71.0	0.5	0.5	3.61	372	462	30	5000	
9413401	46091258434	2-BOX 963XC01L	558434	2-BOX 963XC01L	1117.2	0.2	104.6	1.5	0.5	4.21	369	500	30	5000	
7251501	78091608778	2-BOX 963XC01L	608778	2-BOX 963XC01L	1181.0	24.4	70.6	0.3	0.5	5.11	368	433	30	5000	
7645101	78091608779	2-BOX 963XC01L	608779	2-BOX 963XC01L	1181.8	24.7	67.1	0.4	0.5	5.01	353	440	40	5000	
0658001	77091608780	2-BOX 963XC01L	608780	2-BOX 963XC01L	1191.1	24.3	69.9	0.9	0.7	3.61	318	417	30	5000	
9652601	31091608781	2-BOX 963XC01L	608781	2-BOX 963XC01L	1181.5	21.8	67.8	0.5	0.5	3.81	318	409	30	5000	
8991091	12001613625	2-BOX 963XC01L	613625	2-BOX 963XC01L	1181.8	17.7	60.7	1.2	0.3	5.01	378	471	30	5000	
5946991	13001613626	2-BOX 963XC01L	613626	2-BOX 963XC01L	1114.6	15.4	59.9	1.5	1.0	4.11	417	508	30	5000	

MS/HE04/023, ISSUE NO : 03

WE HEREBY CERTIFY THAT DIMENSION, SHAPE AND APPEARANCE OF THE MATERIAL DESCRIBED HEREIN HAS BEEN SATISFACTORILY TESTED AND INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE SPECIFICATION

DIVISION OF QUALITY CONTROL



SUPERINTENDENT

PHONE : (0254) 371015



