

## LAMPIRAN

### Lampiran 1. Data Hasil Pengujian Viskositas Biodiesel

#### 1. Biodiesel B5

NO	Nama Sampel	Variasi Bahan Bakar	Uji Viskositas	
			Pengujian Ke 1	
			RPM 12	
			Data (mPa.s)	Percent (%)
1	BKBJ 91	B5	3,5	0,7
2	BKBJ 82		3,5	0,7
3	BKBJ 73		3,5	0,7
4	BKBJ 64		4	0,8
5	BKBJ 55		4	0,8

NO	Nama Sampel	Variasi Bahan Bakar	Uji Viskositas	
			Pengujian Ke 2	
			RPM 12	
			Data (mPa.s)	Percent (%)
1	BKBJ 91	B5	3,5	0,7
2	BKBJ 82		3,5	0,7
3	BKBJ 73		4	0,8
4	BKBJ 64		4	0,8
5	BKBJ 55		3,5	0,7

NO	Nama Sampel	Variasi Bahan Bakar	Uji Viskositas	
			Pengujian Ke 3	
			RPM 12	
			Data (mPa.s)	Percent (%)
1	BKBJ 91	B5	3	0,6
2	BKBJ 82		3,5	0,7
3	BKBJ 73		3,5	0,7
4	BKBJ 64		3,5	0,7
5	BKBJ 55		4	0,8

## 2. Biodiesel B10

NO	Nama Sampel	Variasi Bahan Bakar	Uji Viskositas	
			Pengujian Ke 1	
			RPM 12	
			Data (mPa.s)	Percent (%)
1	BKBJ 91	B10	3,5	0,7
2	BKBJ 82		3,5	0,7
3	BKBJ 73		3,5	0,7
4	BKBJ 64		4	0,8
5	BKBJ 55		4,5	0,9

NO	Nama Sampel	Variasi Bahan Bakar	Uji Viskositas	
			Pengujian Ke 2	
			RPM 12	
			Data (mPa.s)	Percent (%)
1	BKBJ 91	B10	4	0,8
2	BKBJ 82		3,5	0,7
3	BKBJ 73		3,5	0,7
4	BKBJ 64		4	0,8
5	BKBJ 55		4	0,8

NO	Nama Sampel	Variasi Bahan Bakar	Uji Viskositas	
			Pengujian Ke 3	
			RPM 12	
			Data (mPa.s)	Percent (%)
1	BKBJ 91	B10	3	0,6
2	BKBJ 82		3,5	0,7
3	BKBJ 73		4	0,8
4	BKBJ 64		3,5	0,7
5	BKBJ 55		4	0,8

## Lampiran 2. Data Hasil Pengujian Densitas Biodiesel

### 1. Biodiesel B5

No	Nama sampel	Variasi Bahan Bakar	Uji Densitas		
			Pengujian Ke 1		
			Massa (g)	Volume (ml)	Densitas (g/ml)
1	BKBJ 91	B5	41,4785	50	0,828608
2	BKBJ 82		41,5874	50	0,831748
3	BKBJ 73		41,4046	50	0,828092
4	BKBJ 64		41,5337	50	0,830674
5	BKBJ 55		41,6162	50	0,832324

No	Nama sampel	Variasi Bahan Bakar	Uji Densitas		
			Pengujian Ke 2		
			Massa (g)	Volume (ml)	Densitas (g/ml)
1	BKBJ 91	B5	41,4809	50	0,829618
2	BKBJ 82		41,4737	50	0,829474
3	BKBJ 73		41,5155	50	0,83031
4	BKBJ 64		41,4723	50	0,829446
5	BKBJ 55		41,6245	50	0,83249

No	Nama sampel	Variasi Bahan Bakar	Uji Densitas		
			Pengujian Ke 3		
			Massa (g)	Volume (ml)	Densitas (g/ml)
1	BKBJ 91	B5	41,3477	50	0,826954
2	BKBJ 82		41,3276	50	0,826552
3	BKBJ 73		41,5223	50	0,830446
4	BKBJ 64		41,5544	50	0,831088
5	BKBJ 55		41,7451	50	0,834902

## 2. Biodiesel B10

No	Nama sampel	Variasi Bahan Bakar	Uji Densitas		
			Pengujian Ke 1		
			Massa (g)	Volume (ml)	Densitas (g/ml)
1	BKBJ 91	B10	41,5006	50	0,830012
2	BKBJ 82		41,5878	50	0,831756
3	BKBJ 73		41,7423	50	0,834846
4	BKBJ 64		41,7932	50	0,835864
5	BKBJ 55		41,7744	50	0,835488

No	Nama sampel	Variasi Bahan Bakar	Uji Densitas		
			Pengujian Ke 2		
			Massa (g)	Volume (ml)	Densitas (g/ml)
1	BKBJ 91	B10	41,6764	50	0,833528
2	BKBJ 82		41,7121	50	0,834242
3	BKBJ 73		41,6181	50	0,832362
4	BKBJ 64		41,7423	50	0,834846
5	BKBJ 55		41,9071	50	0,838142

No	Nama sampel	Variasi Bahan Bakar	Uji Densitas		
			Pengujian Ke 3		
			Massa (g)	Volume (ml)	Densitas (g/ml)
1	BKBJ 91	B10	41,6244	50	0,832488
2	BKBJ 82		41,6232	50	0,832464
3	BKBJ 73		41,6632	50	0,833264
4	BKBJ 64		41,6744	50	0,833488
5	BKBJ 55		41,8899	50	0,837798

### Lampiran 3. Data Hasil Pengujian *Flash Point* Biodiesel

#### 1. Biodiesel B5

No	Nama Sampel	Variasi Bahan Bakar	Uji Flash Point		
			Pengujian Ke 1		
			Temperatur (°C)		
			Pengkabutan	Flash Point	Terbakar Sempurna
1	BKBJ 91	B5	61	71,1	95,3
2	BKBJ 82		61,3	78,4	96,7
3	BKBJ 73		61,9	77,7	93,3
4	BKBJ 64		60,9	82,1	121,3
5	BKBJ 55		67,2	87	120,5

No	Nama Sampel	Variasi Bahan Bakar	Uji Flash Point		
			Pengujian Ke 2		
			Temperatur (°C)		
			Pengkabutan	Flash Point	Terbakar Sempurna
1	BKBJ 91	B5	60,2	73,1	92,1
2	BKBJ 82		65,6	72,7	95,7
3	BKBJ 73		72,7	77,9	95,5
4	BKBJ 64		65,4	82,3	96,8
5	BKBJ 55		71,3	86,3	110,3

No	Nama Sampel	Variasi Bahan Bakar	Uji Flash Point		
			Pengujian Ke 3		
			Temperatur (°C)		
			Pengkabutan	Flash Point	Terbakar Sempurna
1	BKBJ 91	B5	61,5	73,9	90,4
2	BKBJ 82		68,3	75,3	99,7
3	BKBJ 73		67,7	76,4	103,7
4	BKBJ 64		67,8	76,5	111,5
5	BKBJ 55		68,2	82,3	101,2

## 2. Biodiesel B10

No	Nama Sampel	Variasi Bahan Bakar	Uji Flash Point		
			Pengujian Ke 1		
			Temperatur (°C)		
			Pengkabutan	Flash Point	Terbakar Sempurna
1	BKBJ 91	B10	63,7	77,2	100,2
2	BKBJ 82		62,2	79,3	102,7
3	BKBJ 73		67,2	83,8	110,2
4	BKBJ 64		64,6	85,5	119,2
5	BKBJ 55		66,4	87,4	121,3

No	Nama Sampel	Variasi Bahan Bakar	Uji Flash Point		
			Pengujian Ke 2		
			Temperatur (°C)		
			Pengkabutan	Flash Point	Terbakar Sempurna
1	BKBJ 91	B10	61,3	76,7	99,6
2	BKBJ 82		63,7	74,1	99,7
3	BKBJ 73		61,4	83,7	101,4
4	BKBJ 64		66,6	82,9	102,5
5	BKBJ 55		68,7	87,1	100,6

No	Nama Sampel	Variasi Bahan Bakar	Uji Flash Point		
			Pengujian Ke 3		
			Temperatur (°C)		
			Pengkabutan	Flash Point	Terbakar Sempurna
1	BKBJ 91	B10	60,3	75	98,6
2	BKBJ 82		67,3	78,8	107,3
3	BKBJ 73		64,5	78,7	106,7
4	BKBJ 64		67,5	84,4	99,4
5	BKBJ 55		65,7	88,1	102,3

#### Lampiran 4. Data Hasil Pengujian Kalor Biodiesel

##### 1. Biodiesel B5

No	Nama Sampel (B5)	Variasi Bahan Bakar	Nilai Kalor ( Kal/g)
1	BKBJ91	B5	10792,01
2	BKBJ82		10790,10
3	BKBJ73		10740,42
4	BKBJ64		10772,43
5	BKBJ55		10749,14

##### 2. Biodiesel B10

No	Nama Sampel (B10)	Variasi Bahan Bakar	Nilai Kalor ( Kal/g)
1	BKBJ91	B10	10738,27
2	BKBJ82		10739,71
3	BKBJ73		10733,26
4	BKBJ64		10741,68
5	BKBJ55		10702,68

## Lampiran 5. Data Hasil Pengujian Sifat Fisik Solar

### 1. Viskositas

NO	Nama Sampel	Uji Viskositas					
		Pengujian Ke 1		Pengujian Ke 2		Pengujian Ke 3	
		RPM 12					
		Data (mPa.s)	Percent (%)	Data (mPa.s)	Percent (%)	Data (mPa.s)	Percent (%)
1	Solar	3	0,6	3	0,6	3	0,6

### 2. Densitas

No	Nama sampel	Uji Densitas		
		Pengujian Ke 1		
		Massa (g)	Volume (ml)	Densitas (g/ml)
1	Solar	41,309	50	0,82618

No	Nama sampel	Uji Densitas		
		Pengujian Ke 2		
		Massa (g)	Volume (ml)	Densitas (g/ml)
1	Solar	41,306	50	0,82612

No	Nama sampel	Uji Densitas		
		Pengujian Ke 3		
		Massa (g)	Volume (ml)	Densitas (g/ml)
1	Solar	41,309	50	0,82618



3. *Flash Point*

No	Nama Sampel	Uji Flash Point		
		Pengujian Ke 1		
		Temperatur (°C)		
		Pengkabutan	Flash Point	Terbakar Sempurna
1	Solar	50,3	60,6	78,7

No	Nama Sampel	Uji Flash Point		
		Pengujian Ke 2		
		Temperatur (°C)		
		Pengkabutan	Flash Point	Terbakar Sempurna
1	Solar	48,5	60,8	79

No	Nama Sampel	Uji Flash Point		
		Pengujian Ke 3		
		Temperatur (°C)		
		Pengkabutan	Flash Point	Terbakar Sempurna
1	Solar	48,9	60,9	78,4

## 4. Nilai Kalor

Nama Sampel	Nilai Kalor (cal/g)
Solar	10970,030

## Lampiran 6. Data Hasil Kalibrasi Sensor Temperatur

### 1. Kalibrasi Temperatur 0°

No	Sensor	Uji Kalibrasi		
		Pengujian 1	Pengujian 2	Pengujian 3
		Temperatur 0°		
1	Oli	0,4	0,4	0,4
2	Intake	0,5	0,3	0,3
3	Exhaust	0,8	0,8	0,7
4	Cooler	0,4	0,4	0,4

### 2. Kalibrasi Temperatur 100°

No	Sensor	Uji Kalibrasi		
		Pengujian 1	Pengujian 2	Pengujian 3
		Temperatur 0°		
1	Oli	98	98	97,9
2	Intake	97,2	97	97,1
3	Exhaust	98,4	98,4	98,4
4	Cooler	98,5	98,3	98,6

**Lampiran 7. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 91 B5**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B5	100%	0	2506	325	0	35.6	75.5	71.6	77.8	73.57
		500	2477	280	9.3	36.2	75.7	72.3	78	61.91
		1000	2445	222	14.47	36.2	76.2	72.5	78.1	60.77
		1500	2398	165	18.4	36.5	76.8	72.8	78.1	54.34
		2000	2389	111	19.96	36.7	76.8	73.5	78.2	53.88
		2500	2360	77.5	21.77	37.2	77.3	73.7	78.2	49.71

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B5	100%	0	2505	320	0	36.8	80.1	70.1	78	74.63
		500	2473	279	9.21	37	80.7	71.2	78	62.44
		1000	2440	218	14.16	37.4	81.2	70	78.2	61.62
		1500	2389	162	17.88	36.8	81.6	70.4	78.2	57.98
		2000	2377	109	19.56	37.1	80.9	70.8	78.2	55.56
		2500	2465	77.6	21.45	37.4	81	71.2	78.1	50.77

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B5	100%	0	2507	321	0	37.1	80.9	70.3	78	74.77
		500	2475	282	9.2	37.6	81.5	69.9	78	62.78
		1000	2446	225	14.17	37.2	82.1	70.4	78	60.74
		1500	2437	158	17.64	36.9	82.1	70.9	78.1	56.67
		2000	2400	108	19.45	37.2	83.6	72.1	78.1	54.21
		2500	2353	77.5	21.33	37.1	84.7	71.2	78.1	51.62

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B5	100%	0	2508	319	0	37.8	73.2	70.8	77.8	74.78
		500	2474	282	9.21	38.5	71	71.5	78.1	63.4
		1000	2445	218	14.18	38.7	76.9	75.5	78.1	60.54
		1500	2413	156	17.77	38.4	84.1	75.1	78.1	57.1
		2000	2390	109	19.55	38.1	85.7	74.1	78.2	55.84
		2500	2360	77.7	21.77	38.3	86.3	73.2	78	51.62

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B5	100%	0	2507	320	0	37.1	82.9	69.8	78	75.52
		500	2473	280	9.33	37.1	83.1	70.2	78	64.44
		1000	2445	220	14.55	37	84.7	70.1	78	59.34
		1500	2455	158	17.89	36.8	84.7	71.6	78.1	55.33
		2000	2396	112	19.77	37	85	72.3	78.2	53.43
		2500	2352	77.6	21.56	37.2	85.1	71.7	78	50.34

**Lampiran 8. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 82 B5**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B5	100%	0	2505	318	0	36.9	73.4	69.9	76.5	74.44
		500	2468	278	9.23	37.3	72.3	69.5	76.5	66.14
		1000	2440	215	14.03	37.5	76.5	71.2	77.2	63.81
		1500	2400	158	17.7	37.8	83.2	73.3	77.5	60.15
		2000	2385	105	19.55	38.4	85.3	71.4	77.2	57.45
		2500	2372	75.2	20.89	37.9	86.2	71.5	76.9	52.44

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B5	100%	0	2507	320	0	36.8	81.8	71.5	78	74.11
		500	2469	277	9.21	37.1	81.6	71.4	78	64.76
		1000	2438	213	14.15	37.5	82.1	70.7	78	61.23
		1500	2421	158	17.87	37.2	82.5	71.1	78.2	58.13
		2000	2387	107	19.6	37.4	84.2	70.8	78.2	53.67
		2500	2374	76.5	21.55	37	83.7	71.4	78.1	50.94

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B5	100%	0	2507	320	0	37	82	70.4	78.2	76.09
		500	2466	275	9.23	37.3	83.1	71.7	78	63.18
		1000	2444	217	14.17	37.2	83.2	70.9	78.1	60.33
		1500	2415	160	18.23	37.4	84.6	71.3	78.1	57.97
		2000	2386	105	19.55	37.7	85.2	71.5	78.1	55.21
		2500	2373	76.7	21.75	38	85.4	71.7	78.2	52.87

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B5	100%	0	2505	320	0	36.5	81.7	72.1	78.1	75.88
		500	2470	280	9.37	36.8	82.6	71.5	78	64.1
		1000	2441	215	14.17	37.3	83.9	71.5	78	62.43
		1500	2405	158	17.73	37.2	84.7	70.7	78	59.68
		2000	2390	111	19.96	37.3	85.4	70.6	78.2	56.18
		2500	2374	77.6	21.76	37.8	85.7	71.5	78.3	52.98

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B5	100%	0	2506	318	0	37.1	80.9	71.1	78.1	75.87
		500	2468	275	9.21	37.1	80.5	71.2	78.1	64.34
		1000	2443	217	14.15	37.4	81.1	70.3	78.2	62.23
		1500	2410	163	17.65	36.9	81.8	70.7	78.1	58.73
		2000	2388	113	19.87	37.5	81.7	70.9	78.1	55.34
		2500	2373	77.8	21.77	37.1	82.3	71	78.1	52.12



**Lampiran 9. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 73 B5**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B5	100%	0	2505	320	0	37.2	80.7	70.4	78	76.42
		500	2467	278	9.34	37.8	81.6	71.1	78	68.65
		1000	2436	214	14.19	37.3	82.2	71.1	78	66.57
		1500	2404	158	18.63	37.3	85.4	70.8	78	63.77
		2000	2380	108	19.86	37.4	84.4	70.7	78	60.03
		2500	2373	77.7	21.78	37.3	84.7	71	78.1	56.29

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B5	100%	0	2505	316	0	37.5	76.7	69.1	77.8	75.77
		500	2463	272	9.15	37.8	72.2	69.8	77.9	66.73
		1000	2434	213	14.17	38.5	77.1	69.3	77.9	63.77
		1500	2398	156	17.76	37.2	82.3	70.2	77.8	61.56
		2000	2387	101	19.77	37.9	86	71.1	77.8	58.66
		2500	2371	76.4	21.58	37.8	86.1	71.3	77.8	55.08

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B5	100%	0	2502	315	0	37.4	81.2	69.1	77.4	75.78
		500	2466	270	9.13	37.7	81.7	69.5	77.7	67.65
		1000	2434	214	14.15	37.9	82.2	70.2	78	64.73
		1500	2390	157	17.74	37.5	83.4	70.1	78	61.34
		2000	2380	106	19.6	37.8	83.7	71.4	78	57.45
		2500	2366	73.8	21.21	37.2	84.1	70.7	78.1	54.1

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B5	100%	0	2505	320	0	36.5	79.9	70.2	78.1	74.44
		500	2465	276	9.22	36.3	80.4	71.3	78.1	65.54
		1000	2440	217	14.16	37.6	79.8	69.9	78.2	63.33
		1500	2402	158	17.87	38	81.4	68.9	78	61.39
		2000	2386	114	19.76	37.5	83.6	71.1	78	57.89
		2500	2369	76.7	21.87	37.2	83.5	70.7	78	54.14

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B5	100%	0	2504	318	0	37.6	83.5	69.8	78.2	75.51
		500	2468	278	9.35	37.1	84.1	71.2	78	67.22
		1000	2436	214	14.15	38	85.2	71.5	78	65.42
		1500	2396	157	17.76	37.4	85.6	71.7	78	61.21
		2000	2390	107	19.97	37.5	85.4	70.4	78.1	58.67
		2500	2371	76.8	21.44	37.3	85.3	70.3	78.1	56.17

**Lampiran 10. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 64 B5**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B5	100%	0	2505	320	0	36.5	72.1	71.2	78	76.87
		500	2460	270	9.11	36.8	72.8	70.9	77.9	70.74
		1000	2434	215	14.15	37.2	81.8	70.8	78	66.37
		1500	2392	156	17.9	37	84.3	71.3	78	60.43
		2000	2376	108	19.6	37.1	83.7	71.5	78	58.09
		2500	2364	74.5	21.24	37.8	83.1	70.4	78.1	57.76

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B5	100%	0	2500	314	0	37.8	70.1	71.1	78.1	75.33
		500	2456	266	9.1	37.5	72.8	71.1	78.2	73.65
		1000	2430	213	14.12	38	75.2	71.5	78	70.67
		1500	2388	155	17.86	37.4	77.3	72.2	78	62.42
		2000	2374	107	19.66	37.4	80.1	73.3	78	61.55
		2500	2368	75.2	20.78	38.2	82.3	73.1	78	59.09

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B5	100%	0	2502	317	0	37.6	82.2	70.1	78	76.45
		500	2460	260	9.15	37.5	82.5	70.3	78	71.68
		1000	2428	210	14.2	37.5	80.5	71.2	78	68.15
		1500	2386	152	17.92	37.2	81.9	70.9	78.2	63.54
		2000	2374	107	19.66	37.1	84.3	69.8	78.1	60.78
		2500	2367	75.4	21.54	37.6	85.1	71.1	78.1	58.77

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B5	100%	0	2505	318	0	37.9	81.7	70.1	78	75.66
		500	2459	265	9.13	37.4	80.9	70.3	78	72.21
		1000	2434	213	14.11	37.4	81.4	71.8	78	68.77
		1500	2392	155	17.9	37.8	83.6	71.8	78.1	63.78
		2000	2377	108	19.57	37.5	84.4	72.2	78	61.78
		2500	2370	75.8	21.23	37.1	84.7	71.9	78	58.89

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B5	100%	0	2505	318	0	37.4	80.1	69.9	78.1	75.68
		500	2458	270	9.14	37.2	82.9	70.2	78	72.78
		1000	2430	215	14.1	37.1	81.7	70	78	67.66
		1500	2389	156	17.87	37.1	83.3	70.2	78	62.21
		2000	2375	107	19.68	37.1	84.6	70.7	78.1	59.94
		2500	2367	76.2	21.67	37.4	84.5	71.4	78	57.87

**Lampiran 11. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 55 B5**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B5	100%	0	2500	314	0	36.7	78.6	70.2	76.8	77.39
		500	2454	259	9.23	37.5	70.5	70.3	77.2	74.79
		1000	2426	206	14.27	37.9	76.9	70.5	77.4	71.77
		1500	2380	152	17.6	37.6	82.7	71.5	75	66.39
		2000	2366	104	19.45	37.5	87.9	73.2	77.6	63.69
		2500	2361	74.6	21.65	38.2	89.2	74.5	77.2	61.5

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B5	100%	0	2505	318	0	36.8	66.5	66.7	78	77.5
		500	2460	265	9.2	37.3	69.7	67.6	78.1	73.35
		1000	2428	207	14.1	37.2	75.5	69.3	78.1	71.74
		1500	2383	158	17.23	35.6	82.5	71.3	78.3	63.55
		2000	2368	105	19.2	37.3	85.6	67.7	78.3	60.87
		2500	2358	73.77	21.55	37.1	84.5	70.2	78.3	59.33

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B5	100%	0	2502	316	0	36	67.7	66.8	76.3	76.3
		500	2457	265	9.19	36.5	74.3	69	78	73.02
		1000	2430	210	14.23	36.8	79.5	70.2	78	70.88
		1500	2382	157	17.32	37.6	83.7	70.1	78.2	65.43
		2000	2368	105	19.34	37.7	84.3	68.6	78	62.77
		2500	2359	74.7	21.57	36.7	83.5	69.7	78	60.86

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B5	100%	0	2503	316	0	35.6	67.5	69.2	77.5	76.34
		500	2457	260	9.2	36.9	74.8	68.3	77.9	72.84
		1000	2433	212	14.21	37.2	78.9	70.1	78	70.5
		1500	2378	156	16.89	37.4	84.7	69.8	78	65.35
		2000	2370	106	19.34	36.1	85.1	71.2	78	62.69
		2500	2355	73.7	21.53	37.3	84.7	70.8	78	60.77



Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B5	100%	0	2500	314	0	37	81.7	72.1	78.1	76.56
		500	2458	262	9.25	36.8	82.6	71.5	78	73.5
		1000	2427	215	14.2	37.3	83.9	71.5	78	70.67
		1500	2380	156	17.87	37.2	84.7	70.7	78	63.39
		2000	2368	107	19.7	37.3	85.4	70.6	78	60.77
		2500	2358	74.73	21.55	36.8	85.3	71.5	78	58.84

**Lampiran 12. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 91 B10**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B10	100%	0	2505	314	0	36.3	69	72.1	77	75.52
		500	2470	273	9.16	34.9	73.8	71.9	77.6	66.44
		1000	2441	218	14.28	35.2	78.7	71.1	78	63.34
		1500	2397	153	17.8	36	80.4	70.4	78.4	60.33
		2000	2384	107	19.77	36.4	83.6	70.7	78.2	57.43
		2500	2372	76.3	21.75	37.2	85.3	71	78.2	53.74

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B10	100%	0	2505	316	0	37.1	80.9	71.1	78.2	74.77
		500	2467	270	9.15	37.1	81.2	70.7	78	70.78
		1000	2437	216	14.2	36.5	82.7	71.7	78	67.9
		1500	2395	152	17.65	36.7	83.5	70.1	78	62.3
		2000	2385	108	19.85	36	84.4	71.5	78.1	58.78
		2500	2372	76.4	21.75	37.7	85	72.1	78	52.97

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B10	100%	0	2505	314	0	37.3	80	71.8	78.1	75.52
		500	2472	274	9.16	39.6	83.9	70.8	79.9	68.44
		1000	2442	218	14.27	39.1	79.7	70.7	78.2	65.34
		1500	2407	156	17.87	37.7	83.7	71.9	78.3	61.33
		2000	2383	107	19.85	37.7	84.9	72.1	78	56.43
		2500	2370	76.6	21.62	36.7	83.5	71.4	78.2	51.84

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B10	100%	0	2504	315	0	37.1	80.1	72.2	78	74.56
		500	2472	275	9.16	36.8	81.4	70.9	78	65.77
		1000	2440	219	14.37	36.8	82.9	71.3	78	64.8
		1500	2400	155	17.76	37.6	81.7	70.8	78	60.55
		2000	2388	107	19.84	37.2	82.5	71.7	78.1	56.8
		2500	2368	75.5	21.72	37.3	84.1	70	78.1	53.78

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 91 B10	100%	0	2507	317	0	37	80	70.8	78.2	74.77
		500	2470	274	9.19	36.8	80.3	72	78.1	68.87
		1000	2441	218	14.28	37.1	81.7	71.4	78.1	65.33
		1500	2405	155	17.87	37.5	82	71.3	78.1	60.06
		2000	2387	108	19.87	37.8	82.2	73.2	78	58.21
		2500	2373	76.5	21.77	37.3	84.3	73.1	78	54.87

**Lampiran 13 . Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 82 B10**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B10	100%	0	2505	314	0	36.1	67.5	68.7	78	75.63
		500	2467	272	9.14	36.5	71.1	69.4	78.2	71.13
		1000	2438	218	14.32	36.2	75.8	71.1	78.3	68.23
		1500	2393	153	17.86	36.8	76.2	69.7	78.3	60.41
		2000	2382	107	19.76	37.3	80.9	70.1	78.3	56.6
		2500	2367	76	21.64	36.5	84.8	70.9	78.3	52.02

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B10	100%	0	2507	316	0	37.2	82.6	72.2	78.1	76.77
		500	2464	273	9.16	36.9	83.7	71.3	78.1	73.26
		1000	2438	218	14.34	37	84.5	71.1	78	70.85
		1500	2395	154	17.77	37.1	84.9	70.1	78	62.65
		2000	2380	106	19.64	37.2	83.5	72.8	78.1	58.78
		2500	2368	76.5	21.63	37.6	84.4	73.2	78.2	55.07

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B10	100%	0	2503	315	0	37	80.3	70.6	78.1	75.52
		500	2460	271	9.13	37.4	79.8	71.6	78.2	70.44
		1000	2440	218	14.33	37.1	80.1	70.1	78.2	67.34
		1500	2395	154	17.88	36.8	83.3	71.9	78.1	61.33
		2000	2382	107	19.77	37	84.3	71.8	78	58.43
		2500	2370	76.3	21.64	37.4	81.5	70.1	78	56.74

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B10	100%	0	2504	313	0	37.4	82.5	72	78	75.87
		500	2458	269	9.12	37.1	83.8	71.7	78.1	69.34
		1000	2432	216	14.21	37.4	84.3	70.9	78.1	67.23
		1500	2390	152	17.65	37.1	84.9	70.5	78.1	63.73
		2000	2377	105	19.54	36.9	83.6	71.3	78.2	60.19
		2500	2366	75.8	21.65	37	83.2	72.1	78.2	57.12

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 82 B10	100%	0	2504	315	0	37	81.7	70.9	78	76.09
		500	2461	271	9.15	37.2	82.5	71.5	78	70.18
		1000	2437	216	14.34	37.6	83.6	72.6	78	63.33
		1500	2395	154	17.66	37.2	83.8	72.6	78	60.97
		2000	2380	107	19.67	37	83.9	73.4	78	58.21
		2500	2370	76.3	21.62	36.8	84.3	73.4	78	56.87

**Lampiran 14. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 73 B10**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B10	100%	0	2506	319	0	37	80.4	71.4	78	77.92
		500	2452	268	9.05	37.1	82.5	71.3	78	71.22
		1000	2436	218	14.26	37.5	82.7	71.2	78	68.27
		1500	2386	153	17.81	37.2	82	71.5	78	64.44
		2000	2376	106	19.5	36.9	83.2	72.1	78	61.99
		2500	2360	75.5	21.53	37	83.8	72.2	78	58.91

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B10	100%	0	2504	317	0	36.9	81.1	71.76	78	76.75
		500	2460	271	9.12	36.8	82.9	71.42	78	72.65
		1000	2434	217	14.32	37.2	80.7	71.44	78	70.57
		1500	2390	154	17.72	37.3	83.5	71.67	78	67.77
		2000	2378	107	19.67	37.1	83.6	72.12	78.1	64.73
		2500	2363	75.6	21.53	37.1	85.4	71.89	78	60.79



Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B10	100%	0	2505	317	0	37.2	82.5	70.6	78.1	76.78
		500	2460	271	9.11	37.1	83.1	70.3	78.1	71.34
		1000	2428	215	14.38	37.2	83.8	70.7	78.1	69.93
		1500	2387	153	17.67	37.2	83.3	71.12	78.1	66.54
		2000	2374	106	19.64	37	84.7	71.43	78	61.43
		2500	2370	76.6	21.58	37	85.2	71.55	78	58.97

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B10	100%	0	2503	318	0	37.2	83.1	70.8	78	77.89
		500	2457	270	9.14	36.5	83.8	71.5	78	74.18
		1000	2428	214	14.44	37.1	84.6	71.7	78	71.83
		1500	2383	153	17.34	37	82.7	71.7	78.1	68.97
		2000	2377	107	19.6	36.9	83.3	71.8	78.1	65.81
		2500	2360	75.55	21.52	37.3	83.4	72.1	78.2	62.87

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 73 B10	100%	0	2505	316	0	37	80.1	71.4	78	76.44
		500	2463	272	9.17	37.1	82.7	71.3	78	73.4
		1000	2425	213	14.34	37.1	83.6	71.2	78	70.83
		1500	2395	156	17.77	37.2	82	71.2	78.1	68.32
		2000	2380	107	19.62	36.9	85.5	72.1	78.1	63.44
		2500	2362	75.68	21.58	37.2	83.6	72.2	78	58.98

**Lampiran 15. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 64 B10**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B10	100%	0	2506	317	0	35.2	68.3	68.1	78.1	78.22
		500	2460	275	9.2	34.7	69.6	69.6	78	74.65
		1000	2425	213	14.1	35.4	76.8	71	78.2	71.91
		1500	2378	150	17.53	35.9	83.8	69.2	78.3	69.77
		2000	2368	104	19.65	36.9	87.5	71.3	78.4	65.26
		2500	2350	75.5	21.32	36.5	87.9	71.7	78.4	61.8

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B10	100%	0	2505	316	0	37	80.1	71.4	78	78.83
		500	2455	276	9.15	37.1	82.7	71.3	78	73.34
		1000	2430	215	14.22	37.5	83.6	71.2	78	70.56
		1500	2381	152	17.63	37.8	82	71.5	78.1	68.81
		2000	2374	106	19.64	36.9	85.5	72.1	78.1	65.55
		2500	2357	75.4	21.32	36.9	83.6	72.2	78.2	63.34

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B10	100%	0	2503	315	0	37	80.3	70.6	78.1	77.45
		500	2450	270	9.15	37.2	79.8	70.6	78.2	73.44
		1000	2428	215	14.21	37.2	80.1	71.1	78.3	70.66
		1500	2384	153	17.76	36.8	83.3	70.9	78.1	67.84
		2000	2373	105	19.54	37	83.7	70.8	78.1	64.66
		2500	2353	75.3	21.45	37.1	82.5	71.1	78.2	62.89

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B10	100%	0	2504	316	0	37.1	80.9	70.1	78.2	78.38
		500	2448	267	9.13	37.1	81.2	70.7	78	76.67
		1000	2425	213	14.23	36.5	83.7	70.7	78	73.55
		1500	2380	152	17.83	36.7	83.7	71.1	78	71.81
		2000	2372	105	19.57	36	84.4	71.5	78.1	69.89
		2500	2357	75.7	21.22	37.7	85	72.1	78	63.88

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 64 B10	100%	0	2504	315	0	36.9	81.1	71.76	78	77.66
		500	2464	275	9.16	36.8	82.9	71.42	78	75.33
		1000	2433	215	14.22	37.2	80.7	71.44	78	71.41
		1500	2382	153	17.88	37.3	83.5	71.67	78	68.83
		2000	2375	106	19.67	37.1	83.6	72.12	78.1	66.45
		2500	2355	75.4	21.12	37.1	85.4	71.89	78	64.76

**Lampiran 16. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar BKBJ 55 B10**

Pengujian ke-1

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B10	100%	0	2502	316	0	34.7	68.6	66.7	77.8	78.86
		500	2456	270	9.09	33.1	68.9	67.9	77.5	76.86
		1000	2405	214	14.2	33.3	76.2	70.4	77.2	75.87
		1500	2382	153	17.75	34.5	83.4	68.7	77.5	74.23
		2000	2367	107	19.6	34.8	87.3	70.5	77.5	70.78
		2500	2341	75.3	21.45	35.1	88.8	68.9	77.8	68.83

Pengujian ke-2

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B10	100%	0	2500	317	0	35.9	80.6	72.8	78.2	78.45
		500	2452	266	9.05	36.3	80.3	72	78.1	76.75
		1000	2387	210	14.11	36.8	81.8	72.3	78.1	75.66
		1500	2376	149	17.48	37.3	82.5	71.3	78.1	73.39
		2000	2365	104	19.42	37.1	83.7	71.2	78.2	69.77
		2500	2335	74.5	20.87	37.5	84.3	71.1	78.2	65.83

Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B10	100%	0	2509	316	0	37.3	80	69.8	78.1	79.77
		500	2441	258	9.04	39.6	83.9	69.8	79.9	76.67
		1000	2393	211	13.88	39.1	79.7	70.5	78.2	75.45
		1500	2368	145	17.32	38.7	83.7	70.9	78.3	73.45
		2000	2360	103	19.34	39.7	84.9	72.1	78.3	68.87
		2500	2337	74.7	21.36	39.5	83.5	72.4	78.2	66.23

Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B10	100%	0	2503	317	0	37.1	80.1	72.2	78	77.44
		500	2450	266	9.03	36.8	81.4	70.9	78	76.65
		1000	2387	210	14.12	36.8	82.9	70.3	78	75.66
		1500	2375	148	17.45	37.6	81.7	70.8	78	73.87
		2000	2368	104	19.45	37.2	82.5	70.7	78.1	69.77
		2500	2335	74.6	21.44	37.3	84.1	72	78.1	66.28

Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
BKBJ 55 B10	100%	0	2503	316	0	37.2	82.5	71.3	78.1	77.77
		500	2452	267	9.06	37.1	83.1	71.3	78.1	76.86
		1000	2405	212	14.1	37.2	83.8	71.7	78.1	74.55
		1500	2381	152	17.65	37.2	83.3	72.1	78.1	73.67
		2000	2365	104	19.42	37	84.7	72.4	78.2	70.82
		2500	2337	74.7	21.54	37	85.4	71.5	78.2	65.88



**Lampiran 17. Data Hasil Unjuk Kerja Mesin Diesel Bahan Bakar Solar 100%**

**Pengujian ke-1**

Bahan Bakar	Bukaan Throttle	Beban	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
Solar 100%	100%	0	2510	331	0	34.1	66.2	72.2	77.8	74.46
		500	2477	283	9.35	34.4	73.8	75.9	78.4	68.3
		1000	2445	223	14.47	35.3	79.9	79.3	78.3	57.39
		1500	2396	162	18.41	36.5	84.1	77.3	78	52.07
		2000	2390	111	19.96	35.4	79.2	77.9	78.1	50.39
		2500	2376	77.5	21.88	37	81.7	76.8	78	46.07

**Pengujian ke-2**

Bahan Bakar	Bukaan Throttle	Beban (watt)	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
Solar 100%	100%	0	2505	320	0	36.5	64.2	72.5	78.1	75.15
		500	2476	272	9.15	36.2	71.5	75.7	78.7	60.38
		1000	2458	221	14.44	36.6	77.3	71.4	78.4	54.98
		1500	2429	152	17.78	34.5	79.9	71.5	78.2	53.12
		2000	2396	106	19.66	34.7	82	78.3	77.9	50.18
		2500	2384	74.5	22.58	34.5	85.2	82.4	77.9	47.48

### Pengujian ke-3

Bahan Bakar	Bukaan Throttle	Beban (watt)	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
Solar 100%	100%	0	2504	325	0	39.1	68.9	75.5	78.5	78.38
		500	2478	280	9.43	36.6	71.8	71.4	77.7	58.91
		1000	2444	227	14.56	37.1	78.5	74.5	78.2	50.73
		1500	2428	158	18.45	37	84.2	80.7	78.1	48.77
		2000	2396	112	19.77	37.5	87.4	79.7	78.3	48.85
		2500	2377	76	22.79	38	87	79.6	78.2	48.19

### Pengujian ke-4

Bahan Bakar	Bukaan Throttle	Beban (watt)	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
Solar 100%	100%	0	2501	321	0	36.4	70.4	73.3	78.1	71.23
		500	2469	285	9.4	36.6	75.1	71.4	77.9	57.88
		1000	2454	220	14.38	35.8	80.9	69.7	78.7	49.67
		1500	2431	163	17.7	37.9	85.1	71.6	78.4	48.1
		2000	2397	108	18.98	40.1	86.8	74.2	78.5	46.58
		2500	2382	78	21.87	41.4	88.2	71.1	78.5	45.39

### Pengujian ke-5

Bahan Bakar	Bukaan Throttle	Beban (watt)	RPM	V	I	Tin	Tex	Cooler	Oli	detik / 10 ml
Solar 100%	100%	0	2506	328	0	35.1	74.8	68.8	78.1	73.59
		500	2487	295	9.54	36.5	73.1	69.6	77.7	58.38
		1000	2445	231	14.58	36.4	78.5	70.1	78.3	50.78
		1500	2418	160	18.76	39	80.6	70.2	78.5	48.61
		2000	2395	113	19.87	38.7	80.2	69.7	78.5	46.18
		2500	2385	81	22.13	39.3	84.5	71.4	78.5	46.2

**Lampiran 18. Hasil Pengujian Karakteristik Injeksi Biodiesel B5**

## 1. BKBJ 91 B5



0,01 s

0,04 s

0,08 s

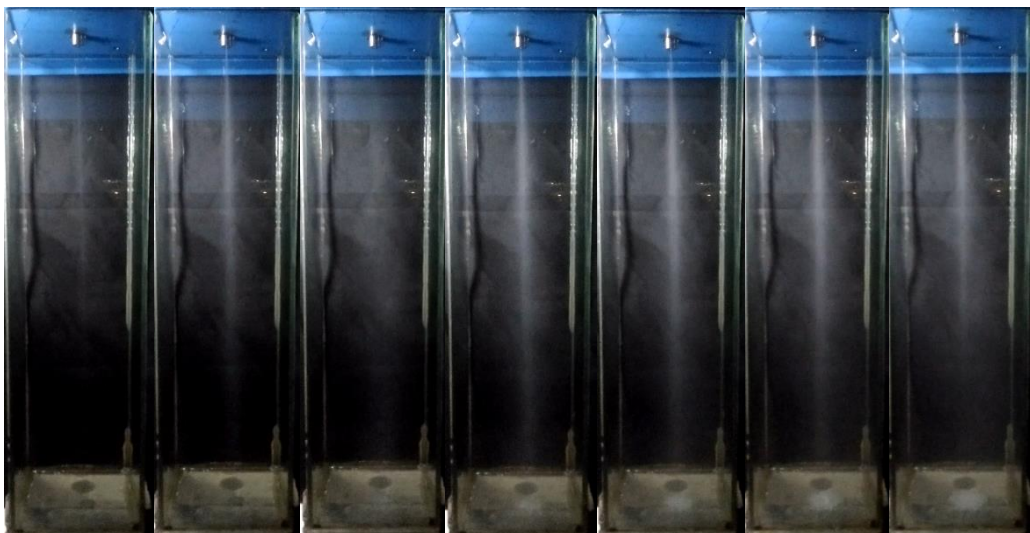
0,12 s

0,16 s

0,20 s

0,24 s

## 2. BKBJ 82 B5



0,01 s

0,04 s

0,08 s

0,12 s

0,16 s

0,20 s

0,24 s

## 3. BKBJ 73 B5



0,01 s      0,04 s      0,08 s      0,12 s      0,16 s      0,20 s      0,24 s

## 4. BKBJ 64 B5



0,01 s      0,04 s      0,08 s      0,12 s      0,16 s      0,20 s      0,24 s

## 5. BKBJ 55 B5



0,01 s

0,04 s

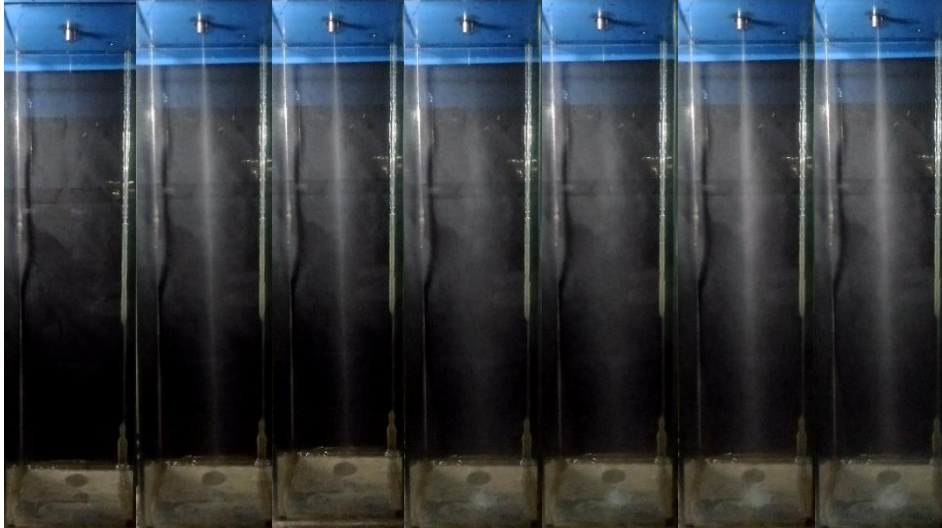
0,08 s

0,12 s

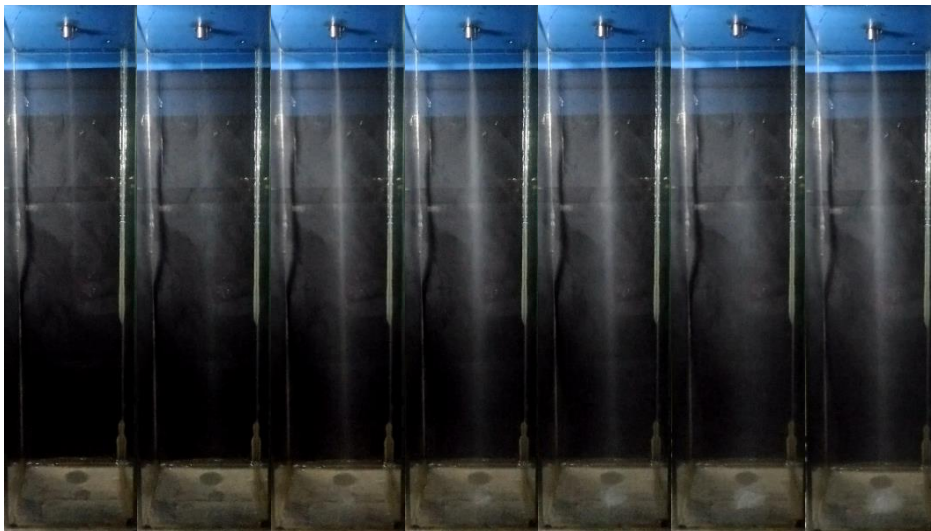
0,16 s

0,20 s

0,24 s

**Lampiran 19. Hasil Pengujian Karakteristik Injeksi Biodiesel B10****1. BKBJ 91 B10**

0,01 s    0,04 s    0,08 s    0,12 s    0,16 s    0,20 s    0,24 s

**2. BKBJ 82 B10**

0,01 s    0,04 s    0,08 s    0,12 s    0,16 s    0,20 s    0,24 s



## 3. BKBJ 73 B10



0,01 s    0,04 s    0,08 s    0,12 s    0,16 s    0,20 s    0,24 s

## 4. BKBJ 64 B10



0,01 s    0,04 s    0,08 s    0,12 s    0,16 s    0,20 s    0,24 s



## 5. BKBJ 55 B10



0,01 s

0,04 s

0,08 s

0,12 s

0,16 s

0,20 s

0,24 s

**Lampiran 20. Hasil Pengujian Karakteristik Injeksi Solar 100%**

0,01 s

0,04 s

0,08 s

0,12 s

0,16 s

0,20 s

0,24 s