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LAMPIRAN

Tabel 1. Data hasil pengujian *X-Ray Diffraction* untuk sampel ZnO tanpa dan dengan doping Fe

2θ	**Intensitas**					
	ZF	**ZF_2**	**ZF_4**	**ZF_6**	**ZF_8**	**ZF_{10}**
10	60	76	74	111	104	114
10,02	48	85	79	120	115	104
10,04	45	94	84	98	99	119
10,06	49	72	97	87	93	112
10,08	47	60	97	89	117	135
10,1	43	78	100	83	103	123
10,12	56	80	86	81	135	123
10,14	53	86	98	104	100	136
10,16	46	72	89	95	119	121
10,18	50	95	110	78	108	123
10,2	49	68	95	94	124	130
10,22	56	69	102	94	101	116
10,24	41	66	83	92	114	111
10,26	51	85	110	91	124	107
10,28	51	76	103	97	89	100
10,3	37	84	83	87	104	116
10,32	44	73	103	79	103	129
10,34	54	92	91	114	112	104
10,36	53	61	83	92	109	112
10,38	49	99	97	94	124	117
10,4	56	85	88	83	115	105
10,42	54	73	107	90	121	117
10,44	53	69	101	110	118	132
10,46	49	79	94	93	104	139
10,48	53	79	119	101	107	108
10,5	50	78	104	103	128	124
10,52	40	73	103	86	110	124
10,54	49	82	119	98	99	116
10,56	49	85	91	86	113	125
10,58	50	72	96	95	100	127
10,6	50	78	74	96	100	107
10,62	54	76	109	84	100	112
10,64	65	65	103	91	108	122
10,66	47	90	106	88	120	129
10,68	45	78	101	104	101	143
10,7	51	71	99	102	107	117
10,72	48	76	99	99	109	139
10,74	51	59	97	106	130	122
10,76	48	88	93	91	111	123
10,78	55	79	97	110	97	115
10,8	43	69	114	107	130	127

Ukuran kristal dengan metode Debye Scerrer diperoleh dengan persamaan (2.1). Nilai ukuran kristal dari sampel ZF_8 dengan nilai k 0,9, panjang gelombang 0,15406, maka diperoleh

$$D = \frac{0{,}9 \times 0{,}15406}{0{,}00597096 \cos(\frac{0{,}553534314}{2})}$$

$$D = 24{,}14013 \text{ nm}$$

Sementara untuk regangan kisi menggunakan persamaan (2.3):

$$\varepsilon = \frac{0{,}005970946}{4 \tan(\frac{0{,}553534314}{2})}$$

$$\varepsilon = 0{,}000424023$$

Ukuran kristal untuk metode Williamson Hall diperoleh dari persamaan (2.4). Untuk sampel ZF_8 maka diperoleh ukuran kristal sebagai berikut:

$$D = \frac{0{,}9 \times 0{,}15406}{0{,}00344}$$

$$D = 40{,}306395\ nm$$

Dimana 0,00344 dan nilai **ε** diperoleh dari nilai persamaan garis plot antara β cos θ terhadap 4 sin θ.

Tabel 2. Hasil perhitungan ukuran kristal dan regangan nanopartikel sampel ZF_8 metode Debye Scerrer

k	λ	FWHM (deg)	FWHM (rad)	2θ (deg)	2θ (rad)	D	ε
0,9	0,15406	0,34211	0,005970946	31,71518	0,553534314	24,14013	0,000424023
0,9	0,15406	0,35742	0,006238156	34,3814	0,600068631	23,26614	0,000482481
0,9	0,15406	0,38747	0,006762627	36,19766	0,631768349	21,57023	0,000552554
0,9	0,15406	0,45885	0,008008443	47,51138	0,829230013	18,91622	0,000881187
0,9	0,15406	0,46983	0,00820008	56,57214	0,987370108	19,20168	0,001103179
0,9	0,15406	0,55759	0,009731781	62,85307	1,096993016	16,69681	0,001486623
0,9	0,15406	0,56519	0,009864426	67,94162	1,185804968	16,94873	0,001661583
Rata-rata						20,1057064	0,000941661

Tabel 3. Hasil pehitungaan ukuran kristal dan regangan nanopartikel sampel ZF_8 metode Williamson Hall

k	Λ	FWHM (deg)	FWHM (rad)	2θ (deg)	2θ (rad)	β cos θ	4 sin θ
0,9	0,15406	0,34211	0,005970946	31,71518	0,553534314	0,005743715	1,092989
0,9	0,15406	0,35742	0,006238156	34,3814	0,600068631	0,005959475	1,182212
0,9	0,15406	0,38747	0,006762627	36,19766	0,631768349	0,006428026	1,242628
0,9	0,15406	0,45885	0,008008443	47,51138	0,829230013	0,0073299	1,61135
0,9	0,15406	0,46983	0,00820008	56,57214	0,987370108	0,00722093	1,895497
0,9	0,15406	0,55759	0,009731781	62,85307	1,096993016	0,008304221	2,08562
0,9	0,15406	0,56519	0,009864426	67,94162	1,185804968	0,008180789	2,235082

Tabel 4. Data hasil pengujian FT-IR untuk sampel ZnO tanpa dan dengan doping Fe

Bilangan gelombang	Transmitansi					
	ZF	ZF_2	XF_4	ZF_6	ZF_8	ZF_{10}
339,4716	74,64356	84,65116	44,45455	87,90268	87,7586	74,86799
341,4004	100,4097	100,7852	103,0118	100,6051	100,889	99,98015
343,3293	98,9669	99,02247	98,0986	99,91343	99,74446	99,04504
345,2581	96,75432	96,47347	91,77454	98,71597	97,96219	97,38741
347,1869	93,85819	93,33282	84,56232	96,98908	95,63547	95,11556
349,1157	90,58949	89,9425	77,33109	94,89313	93,03162	92,06246
351,0445	87,45456	86,89993	71,0115	92,79871	90,61198	88,94505
352,9733	84,40267	84,12937	65,48525	90,76199	88,25383	85,95001
354,9021	81,45253	81,64566	60,6563	88,77531	85,91294	83,18583
356,831	78,42865	79,21659	56,0457	86,64824	83,32987	80,98301
358,7598	75,48556	76,94605	51,70477	84,51966	80,6385	78,72645
360,6886	72,74685	74,87218	47,67417	82,56387	78,01693	74,64875
362,6174	70,26686	73,01562	43,83225	80,82498	75,5598	70,34432
364,5462	68,00713	71,31532	40,14069	79,25258	73,28528	66,74952
366,475	65,93745	69,7725	36,64585	77,78265	71,24064	65,72969
368,4039	64,11164	68,37652	33,49306	76,47066	69,49214	65,08395
370,3327	62,58759	67,24749	30,6615	75,4194	68,11524	63,64616
372,2615	61,05745	66,1269	27,97217	74,38189	66,7825	61,88152
374,1903	59,2794	64,79051	25,1647	73,08509	65,17167	59,92389
376,1191	57,09937	63,06428	22,0855	71,34563	63,0346	57,57178
378,0479	54,81281	61,23195	19,22854	69,4243	60,65067	55,38388
379,9768	52,55262	59,40718	16,83264	67,46766	58,19062	52,99308
381,9056	50,40373	57,66448	14,88987	65,50267	55,73526	50,37109

383,8344	48,37578	55,99833	13,33977	63,55256	53,33547	47,85077
385,7632	46,45621	54,4006	12,04116	61,62636	51,01874	45,64106
387,692	44,60505	52,79498	10,93948	59,69014	48,74505	43,51064
389,6208	42,83669	51,20329	9,99808	57,73727	46,52199	41,91534
391,5497	41,12977	49,60561	9,22199	55,74006	44,32347	40,15104
393,4785	39,43331	47,951	8,56143	53,63334	42,09334	38,05528
395,4073	37,69967	46,18075	8,02988	51,36485	39,7916	35,80927
397,3361	35,91378	44,28027	7,61682	48,925	37,41588	33,56312
399,2649	34,07272	42,23488	7,34806	46,3201	34,96606	31,51919

Tabel 5. Data hasil pengujian UV-Vis untuk sampel bandgap ZnO tanpa dan dengan doping Fe

Panjang gelombang	**Absorbansi**					
	ZF	**ZF_2**	**ZF_4**	**ZF_6**	**ZF_8**	**ZF_{10}**
300	0,92	0,031	0,931	0,059	0,939	0,02
301	0,847	0,03	0,862	0,054	0,862	0,019
302	0,78	0,029	0,794	0,048	0,788	0,017
303	0,717	0,028	0,731	0,043	0,729	0,016
304	0,655	0,027	0,67	0,038	0,667	0,014
305	0,603	0,026	0,614	0,034	0,612	0,013
306	0,554	0,027	0,563	0,032	0,564	0,014
307	0,505	0,025	0,517	0,029	0,515	0,014
308	0,465	0,023	0,473	0,027	0,472	0,012
309	0,426	0,022	0,433	0,025	0,431	0,012
310	0,389	0,021	0,396	0,024	0,395	0,012
311	0,356	0,021	0,362	0,024	0,359	0,011
312	0,326	0,02	0,332	0,022	0,33	0,011
313	0,298	0,02	0,304	0,021	0,303	0,011
314	0,271	0,018	0,277	0,02	0,277	0,009
315	0,249	0,017	0,255	0,02	0,254	0,009
316	0,229	0,017	0,233	0,022	0,232	0,009
317	0,208	0,017	0,214	0,023	0,213	0,011
318	0,19	0,017	0,197	0,024	0,195	0,01
319	0,173	0,015	0,179	0,024	0,179	0,009
320	0,158	0,014	0,163	0,026	0,161	0,009
321	0,143	0,014	0,148	0,027	0,148	0,009
322	0,129	0,013	0,134	0,028	0,135	0,01
323	0,118	0,012	0,123	0,03	0,124	0,008
324	0,106	0,013	0,113	0,033	0,113	0,011
325	0,095	0,012	0,101	0,036	0,103	0,01

326	0,086	0,012	0,093	0,038	0,093	0,011
327	0,077	0,012	0,084	0,041	0,086	0,012
328	0,068	0,011	0,077	0,044	0,078	0,011
329	0,062	0,012	0,071	0,048	0,072	0,013
330	0,055	0,012	0,065	0,052	0,066	0,014
331	0,05	0,012	0,058	0,056	0,061	0,015
332	0,043	0,012	0,054	0,06	0,057	0,014
333	0,038	0,011	0,05	0,065	0,052	0,016
334	0,033	0,011	0,044	0,069	0,048	0,016
335	0,03	0,013	0,043	0,077	0,046	0,02
336	0,024	0,012	0,038	0,082	0,042	0,019

Tabel 6. Data hasil perhitungan bandgap dengan metode touch plot

ZF		**ZF_2**		**ZF_4**		**ZF_6**		**ZF_8**		**ZF_{10}**	
hυ	**$(\alpha h\upsilon)^2$**	**Hυ**	**$(\alpha h\upsilon)^2$**	**Hυ**	**$(\alpha h\upsilon)^2$**	**hυ**	**$(\alpha h\upsilon)^2$**	**hυ**	**$(\alpha h\upsilon)^2$**	**hυ**	**$(\alpha h\upsilon)^2$**
4,13333	76,69453	4,13333	0,08708	3,82263	78,53949	4,13333	0,31542	3,84096	79,89506	4,13333	0,03625
4,1196	64,5751	4,1196	0,08101	3,8089	66,88254	4,1196	0,26247	3,82723	66,88254	4,1196	0,03249
4,10596	54,40096	4,10596	0,0752	3,79526	56,37134	4,10596	0,20602	3,81359	55,5226	4,10596	0,02584
4,09241	45,66509	4,09241	0,06964	3,78171	47,46579	4,09241	0,16424	3,80004	47,20642	4,09241	0,02274
4,07895	37,85879	4,07895	0,06433	3,76825	39,61263	4,07895	0,12742	3,78658	39,25868	4,07895	0,0173
4,06557	31,87617	4,06557	0,05926	3,75487	33,04976	4,06557	0,10134	3,7732	32,8348	4,06557	0,01482
4,05229	26,73055	4,05229	0,06349	3,74159	27,60611	4,05229	0,08918	3,75992	27,70426	4,05229	0,01707
4,03909	22,06669	4,03909	0,05408	3,72839	23,12787	4,03909	0,07277	3,74672	22,94927	4,03909	0,01696
4,02597	18,58813	4,02597	0,04548	3,71527	19,23322	4,02597	0,06267	3,7336	19,15199	4,02597	0,01238
4,01294	15,50006	4,01294	0,04134	3,70224	16,01364	4,01294	0,05338	3,72057	15,86605	4,01294	0,0123
4	12,84124	4	0,03742	3,6893	13,30755	4	0,04888	3,70763	13,24043	4	0,01222
3,98714	10,68588	3,98714	0,03718	3,67644	11,04912	3,98714	0,04857	3,69477	10,86674	3,98714	0,0102
3,97436	8,90343	3,97436	0,03351	3,66366	9,23418	3,97436	0,04055	3,68199	9,12326	3,97436	0,01014
3,96166	7,39222	3,96166	0,0333	3,65096	7,69289	3,96166	0,03671	3,66929	7,64237	3,96166	0,01007
3,94904	6,0745	3,94904	0,0268	3,63834	6,34646	3,94904	0,03309	3,65667	6,34646	3,94904	0,0067
3,93651	5,09576	3,93651	0,02375	3,62581	5,3443	3,93651	0,03288	3,64414	5,30246	3,93651	0,00666
3,92405	4,2828	3,92405	0,0236	3,61335	4,43373	3,92405	0,03953	3,63168	4,39575	3,92405	0,00662
3,91167	3,51107	3,91167	0,02345	3,60097	3,71655	3,91167	0,04293	3,6193	3,6819	3,91167	0,00982
3,89937	2,91128	3,89937	0,02331	3,58867	3,12975	3,89937	0,04645	3,607	3,06652	3,89937	0,00806
3,88715	2,39851	3,88715	0,01803	3,57645	2,56777	3,88715	0,04616	3,59478	2,56777	3,88715	0,00649
3,875	1,98813	3,875	0,01561	3,5643	2,11596	3,875	0,05384	3,58263	2,06435	3,875	0,00645
3,86293	1,61843	3,86293	0,01551	3,55223	1,73358	3,86293	0,0577	3,57056	1,73358	3,86293	0,00641
3,85093	1,30888	3,85093	0,01329	3,54023	1,41231	3,85093	0,06166	3,55856	1,43346	3,85093	0,00787

3,83901	1,0884	3,83901	0,01126	3,52831	1,1826	3,83901	0,07035	3,54664	1,2019	3,83901	0,005
3,82716	0,87288	3,82716	0,01313	3,51646	0,99197	3,82716	0,0846	3,53479	0,99197	3,82716	0,0094
3,81538	0,69681	3,81538	0,01112	3,50468	0,7876	3,81538	0,10006	3,52301	0,8191	3,81538	0,00772
3,80368	0,56754	3,80368	0,01105	3,49298	0,66368	3,80368	0,11081	3,51131	0,66368	3,80368	0,00928
3,79205	0,45219	3,79205	0,01098	3,48135	0,53814	3,79205	0,1282	3,49968	0,56407	3,79205	0,01098
3,78049	0,35051	3,78049	0,00917	3,46979	0,44943	3,78049	0,14675	3,48812	0,46118	3,78049	0,00917
3,769	0,28962	3,769	0,01085	3,45829	0,3798	3,769	0,17359	3,47663	0,39058	3,769	0,01273
3,75758	0,22653	3,75758	0,01078	3,44687	0,3164	3,75758	0,20249	3,4652	0,32621	3,75758	0,01468
3,74622	0,18609	3,74622	0,01072	3,43552	0,2504	3,74622	0,23343	3,45385	0,27697	3,74622	0,01675
3,73494	0,1368	3,73494	0,01065	3,42424	0,21575	3,73494	0,26635	3,44257	0,24038	3,73494	0,0145

Tabel 7. Data hasil pengujian UV-Vis untuk persentase degradasi sampel ZF

Panjang gelombang	**Absorbansi**				
	0 menit	15 menit	30 menit	45 menit	60 menit
300	1,449	0,206	1,023	1,019	0,182
301	1,389	0,206	0,956	0,944	0,183
302	1,313	0,206	0,892	0,881	0,182
303	1,263	0,207	0,832	0,823	0,183
304	1,209	0,206	0,774	0,765	0,183
305	1,167	0,206	0,717	0,711	0,183
306	1,139	0,211	0,673	0,666	0,188
307	1,1	0,211	0,63	0,621	0,187
308	1,061	0,21	0,588	0,577	0,187
309	1,037	0,211	0,552	0,54	0,187
310	1,008	0,212	0,514	0,504	0,188
311	0,984	0,212	0,483	0,472	0,188
312	0,962	0,212	0,453	0,443	0,188
313	0,943	0,211	0,426	0,416	0,188
314	0,926	0,213	0,402	0,392	0,188
315	0,909	0,213	0,38	0,367	0,188
316	0,891	0,212	0,358	0,349	0,188
317	0,877	0,212	0,339	0,329	0,187
318	0,87	0,212	0,322	0,311	0,188
319	0,857	0,211	0,304	0,293	0,187
320	0,847	0,212	0,29	0,277	0,187
321	0,836	0,211	0,275	0,264	0,186

322	0,831	0,211	0,263	0,251	0,187
323	0,828	0,211	0,251	0,24	0,188
324	0,824	0,213	0,24	0,229	0,187
325	0,816	0,211	0,23	0,216	0,187
326	0,817	0,211	0,221	0,209	0,187
327	0,811	0,212	0,212	0,199	0,186
328	0,812	0,211	0,204	0,192	0,186

Persentase degradasi dihitung dengan persamaan sebagai berikut:

$$\text{Persen degradasi (\%)} = \frac{C_0 - C_t}{C_0} 100\%$$

Persentase degradasi untuk sampel ZF menit ke-15 dengan konsentrasi awal (C_0) $1{,}144$ dan konsentrasi pengukuran (C_t) $0{,}135$, maka diperoleh

$$\text{Persen degradasi (\%)} = \frac{1{,}144 - 0{,}135}{1{,}144} 100\%$$

$$= \frac{0{,}881993007}{1{,}144} 100\%$$

$$= 88{,}1993007\ \%$$

Tabel 8. Hasil persentase degadasi terhadap waktu degradasi fotokatalitik CR dengan berbagai konsentrasi

Nama sampel	**C_0**	**C_t**				**% degradasi**			
		15 menit	**30 menit**	**45 menit**	**60 menit**	**15 menit**	**30 menit**	**45 menit**	**60 menit**
ZF	1,144	0,135	0,129	0,107	0,12	88,1993007	88,72377622	90,64685315	89,51048951
ZF2	1,144	0,034	0,122	0,039	0,116	97,02797203	89,33566434	96,59090909	89,86013986
ZF4	1,144	0,025	0,054	0,023	0,07	97,81468531	95,27972028	97,98951049	93,88111888
ZF6	1,144	0,062	0,079	0,013	0,026	94,58041958	93,09440559	98,86363636	97,72727273
ZF8	1,144	0,010	0,04	0,008	0,007	99,09965035	96,5034965	99,3006993	99,38811189
ZF10	1,144	0,028	0,05	0,005	0,067	97,55245	95,62937	99,56294	94,14336

Kinerja fotokatalis terhadap waktu degradasi CR diperoleh dari persamaan berikut:

$$Efisiensi\ degradasi = \frac{C_t}{C_0}$$

Dimana nilai C_t dan C_0 diperoleh dari tabel 8. untuk sampel ZF menit ke-15 dengan konsentrasi awal (C_0) 1,144 dan konsentrasi pengukuran (C_t) 0,135, maka diperoleh

$$Efisiensi\ degradasi = \frac{0{,}135}{1{,}144}$$

$$Efisiensi\ degradasi = 0{,}118006993$$

Tabel 9. Hasil Kinerja fotokatalis terhadap waktu degradasi CR dengan berbagai konsentrasi

Waktu	ZF	ZF_2	ZF_4	ZF_6	ZF_8	ZF_{10}
15	0,118006993	0,02972028	0,021853147	0,054195804	0,009003497	0,024476
30	0,112762238	0,106643357	0,047202797	0,069055944	0,034965035	0,043706
45	0,093531469	0,034090909	0,020104895	0,011363636	0,006993007	0,004371
60	0,104895105	0,101398601	0,061188811	0,022727273	0,006118881	0,058566

Laju Kinetik fotokatalis terhadap waktu degradasi CR diperoleh dari persamaan berikut:

$$\text{Laju Kinetik} = ln\frac{C_0}{C_t}$$

Dimana nilai C_t dan C_0 diperoleh dari tabel 8. untuk sampel ZF menit ke-15 dengan konsentrasi awal (C_0) 1,144 dan konsentrasi pengukuran (C_t) 0,135, maka diperoleh

$$\text{Laju Kinetik} = ln\frac{1{,}144}{0{,}135}$$

$$\text{Laju Kinetik} = 2{,}137011394$$

Tabel 10. Hasil laju Kinetik fotokatalis terhadap waktu degradasi fotokatalitik CR dengan berbagai konsentrasi

Waktu	ZF	ZF_2	ZF_4	ZF_6	ZF_8	ZF_{10}
15	2,137011394	3,515925647	3,823410347	2,915151787	4,710142277	3,710082
30	2,182473768	2,238265127	3,053302125	2,672838319	3,353406718	3,130263
45	2,369457337	3,378724526	3,906791956	4,477336814	4,96284463	5,432848
60	2,254794429	2,288695981	2,79379093	3,784189634	5,096376023	2,837594

Tabel 11. Data hasil pengujian UV-Vis untuk Siklus Cr-0,08 gr

Panjang gelombang	Absorbansi					
	0 menit	45 menit	90 menit	135 menit	180 menit	225 menit
300	2,81	0,072	0,077	0,978	1,008	0,26
301	2,454	0,073	0,077	0,904	0,931	0,262
302	2,339	0,072	0,077	0,84	0,865	0,259
303	2,222	0,072	0,077	0,779	0,8	0,261
304	2,13	0,072	0,077	0,718	0,743	0,262
305	2,176	0,072	0,077	0,667	0,69	0,262
306	2,238	0,072	0,079	0,623	0,642	0,264
307	2,15	0,072	0,08	0,577	0,598	0,265
308	2,172	0,072	0,08	0,535	0,556	0,266
309	2,145	0,073	0,081	0,498	0,521	0,266
310	2,118	0,074	0,081	0,462	0,483	0,267
311	2,049	0,073	0,083	0,429	0,449	0,267
312	2,041	0,073	0,081	0,399	0,423	0,268
313	2,018	0,074	0,08	0,374	0,395	0,269
314	2,07	0,073	0,081	0,349	0,371	0,269
315	1,995	0,073	0,081	0,325	0,348	0,27
316	2,071	0,074	0,081	0,305	0,327	0,27
317	2,019	0,074	0,079	0,284	0,307	0,271
318	1,935	0,074	0,08	0,267	0,291	0,271
319	1,951	0,074	0,079	0,251	0,273	0,271
320	1,954	0,075	0,079	0,236	0,258	0,271
321	1,994	0,075	0,08	0,222	0,244	0,271
322	1,951	0,074	0,079	0,211	0,233	0,272
323	1,94	0,075	0,078	0,197	0,219	0,272
324	1,961	0,075	0,078	0,186	0,209	0,272
325	1,959	0,075	0,078	0,177	0,199	0,273
326	1,98	0,075	0,077	0,169	0,191	0,272
327	1,975	0,074	0,077	0,159	0,181	0,272
328	2,035	0,075	0,076	0,152	0,173	0,273
329	2,01	0,075	0,076	0,145	0,167	0,273
330	2,018	0,074	0,075	0,137	0,158	0,271

Persentase degradasi dihitung dengan persamaan sebagai berikut:

$$\text{Persen degradasi (\%)} = \frac{C_0 - C_t}{C_0} 100\%$$

Persentase degradasi untuk sampel CR-0,1 gr menit ke-45 dengan konsentrasi awal (C_0) $2{,}954$ dan konsentrasi pengukuran (C_t) $0{,}303$, maka diperoleh

$$\text{Persen degradasi (\%)} = \frac{2{,}954 - 0{,}303}{2{,}954} 100\%$$

$$= \frac{2{,}651}{2{,}954} 100\%$$

$$= 89{,}74272\%$$

Tabel 12. Hasil persentase degradasi terhadap waktu dengan berbagai konsentrasi CR

Nama sampel	**C_0**	**C_t**					**% degradasi**				
		Siklus per 45 menit					**Siklus per 45 menit**				
		1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
CR-0,1 gr	2,954	0,303	0,413	0,427	0,957	1,365	89,74272	86,01896	85,54502	67,60325	53,79147
CR-0,08 gr	2,559	0,034	0,044	0,059	0,079	0,21	98,67136	98,28058	97,69441	96,91286	91,79367
CR-0,06 gr	2,142	0,076	0,098	0,101	0,109	0,366	96,45191	95,42484	95,28478	94,9113	82,91317
CR-0,04 gr	1,095	0,039	0,039	0,058	0,067	0,206	96,43836	96,43836	94,7032	93,88128	81,18721