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1. The German specialists at RUBE^{ZN}NOYE were divided into three categories;

- (a) those who had come direct to RUBE^{ZN}NOYE from Germany, evidently as a result of a specific requirement, to add to their experience or to the advancement of the dyestuffs industry;
- (b) the other group comprised German specialists who had come from other locations and whose subsequent activity was merged with the interest specified in (a) above. It was the common view that they had for the most part been engaged on work of direct defence application and were being otherwise occupied in order that they might conveniently forget their previous work while it might possibly be developed further by the Russians.

2. It was evident that the Russian urge to use the Germans was rather unplanned and the requirements not very well-defined. It seemed that the Russians were adopting a somewhat empiric approach by throwing a lot of knowledgeable foreigners together in the hope that something useful might come out of it.

3. The organisation which actually sponsored them was actually NIOPIK. This was the contracted title of the State Scientific Laboratory for Organic Dyes and Intermediates. NIOPIK was an independent development combine or trust, charged with the responsibility for research and development of dyestuffs and intermediates and was a research organisation and clearing house of information obtained from all over the world. While the production aspect was covered by a separate complex of factories the NIOPIK organisation at RUBE^{ZN}NOYE, together with other filials at KEMEROVO(?) and possibly, also at SLAVYANSK, came under NIOPIK, MOSCOW. The whole system was merged in a large State Trust,

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[redacted] the documentation of research and engineering projects undertaken by or on behalf of the Russians is unbelievably full by Western, or at least, by German standards.

8. A perfectly simple item of research which in Germany would probably express itself in a short laboratory report of, perhaps, ten pages, would be elaborated into quite a large treatise. This stress on report writing tended to slow up research work and was one reason why the Germans were comparatively unprolific at RUBENOV. There were, of course, in addition, frequent difficulties which threatened to impede the work and affect the possibility of achieving the work plan. In such an event there were continual consultations in which all reasons for failure were aired. On the whole, however, such problems yielded to slow pertinacity, which eventually brought about ultimate success. In spite of indifferent and impure raw materials or intermediate products which always seemed to vary from their specifications and also the delays due to defective work arising from the inadequate practical knowledge of the Russian chemists.

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9. Another source of trouble from the Russians was the complete isolation of the Germans from the production and material on a semi-technical or pilot plant scale. This work was done in a technical laboratory, and was carried out by the Russian chemists who had assisted in the development of the process in a laboratory. The progress of such work often held great surprises, quite often the actual preliminaries of the semi-scale production of pilot batches of a new colour, which was to be made in a series of reactions involving kilogramme charges rather than gramme charges, were well understood by the German chemists. They did not, however, have access to pilot plant and were unable to control the quality of raw materials. The Russians would run into difficulties and then would come in say, four to six weeks for advice. The chemist of the Works Manager would come with troubled expressions and very reserved.

"The process devised by you cannot be put into practice."

"Why not?" [redacted]

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"We get the end product in small quantities and bad quality."

Inquiry by the Germans and eventual concessions on the part of the Russians would eventually show that the raw materials were unsuitable and in some essential particulars the plant was not being operated correctly. Eventually, after the proper standards of material had been achieved and correct limits for process variables observed there would be a success. This would be hailed by much excitement and acclaim in the Works' paper, the "LENINSKY PRIZYV". There would be a Works meeting in which the achievements of works' personnel would be praised and bonuses awarded to the Works' chemist, who would undoubtedly have been incapable of making the dye on his own. This situation was a typical one which was repeated over and over again. If it was not brought about by the circumstances above, it could be brought about by a distortion of the recommendations made by the German chemists through incorrect translation of particulars or irresponsible alteration or adaptation of plant specifications by Russian staff.

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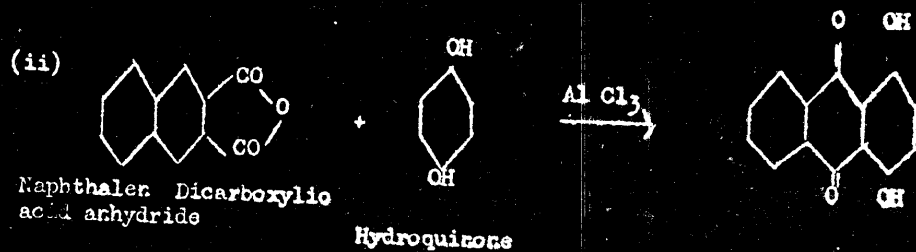
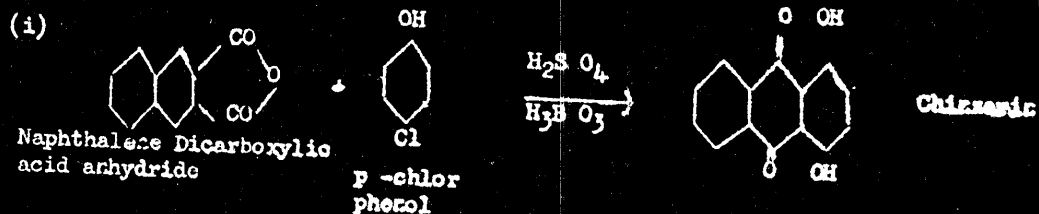
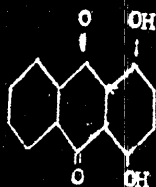
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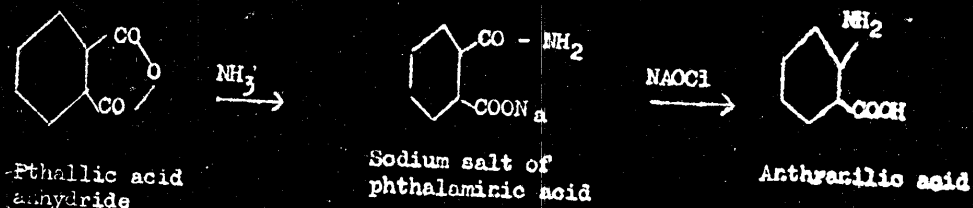
Phase II (until Sept. 1949)

Synthesis of Chlazarin



Phase III (1949 - December 1950)

Synthesis of Anthranilic acid



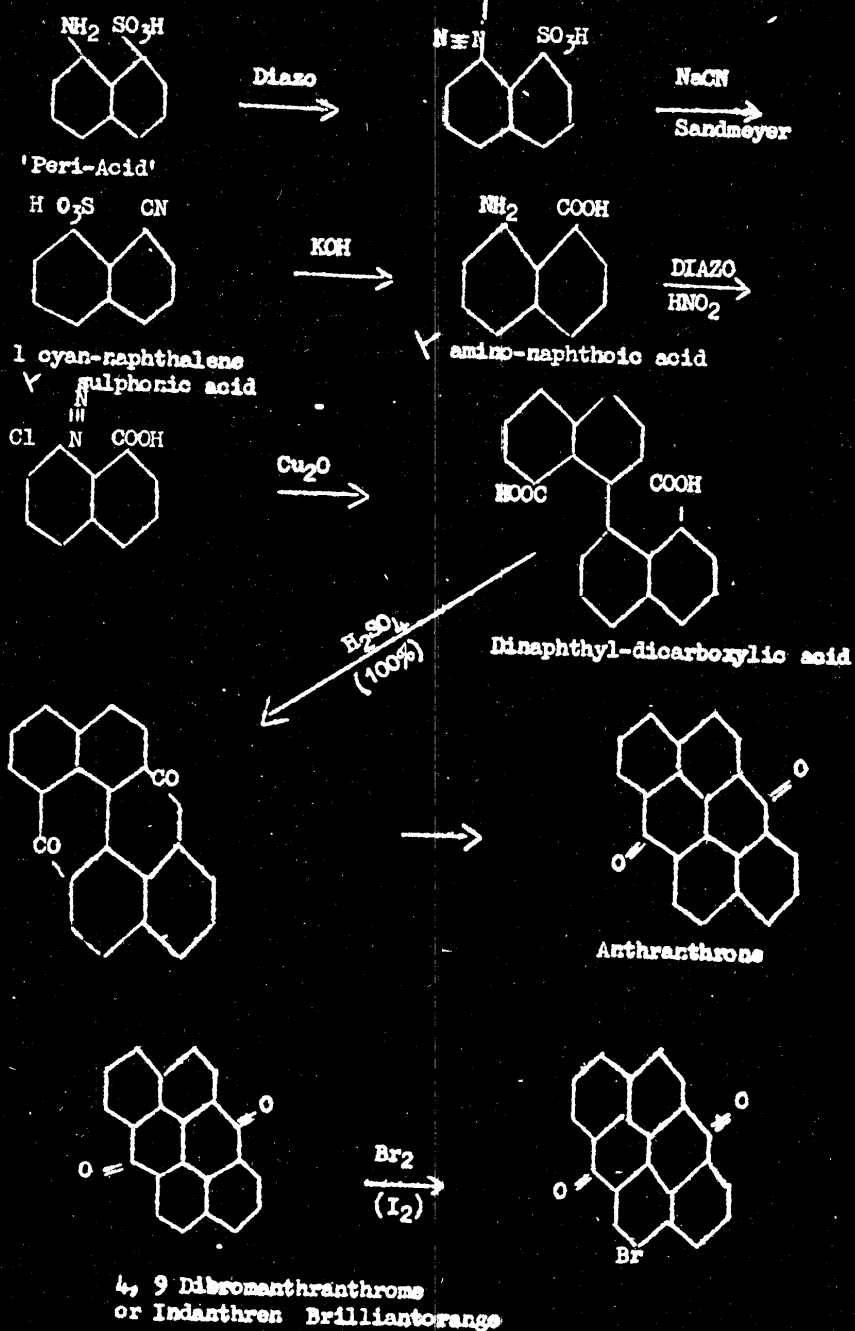
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Phase VI

Synthesis of Indanthrene Brilliant Orange RK (until Feb. 1954)



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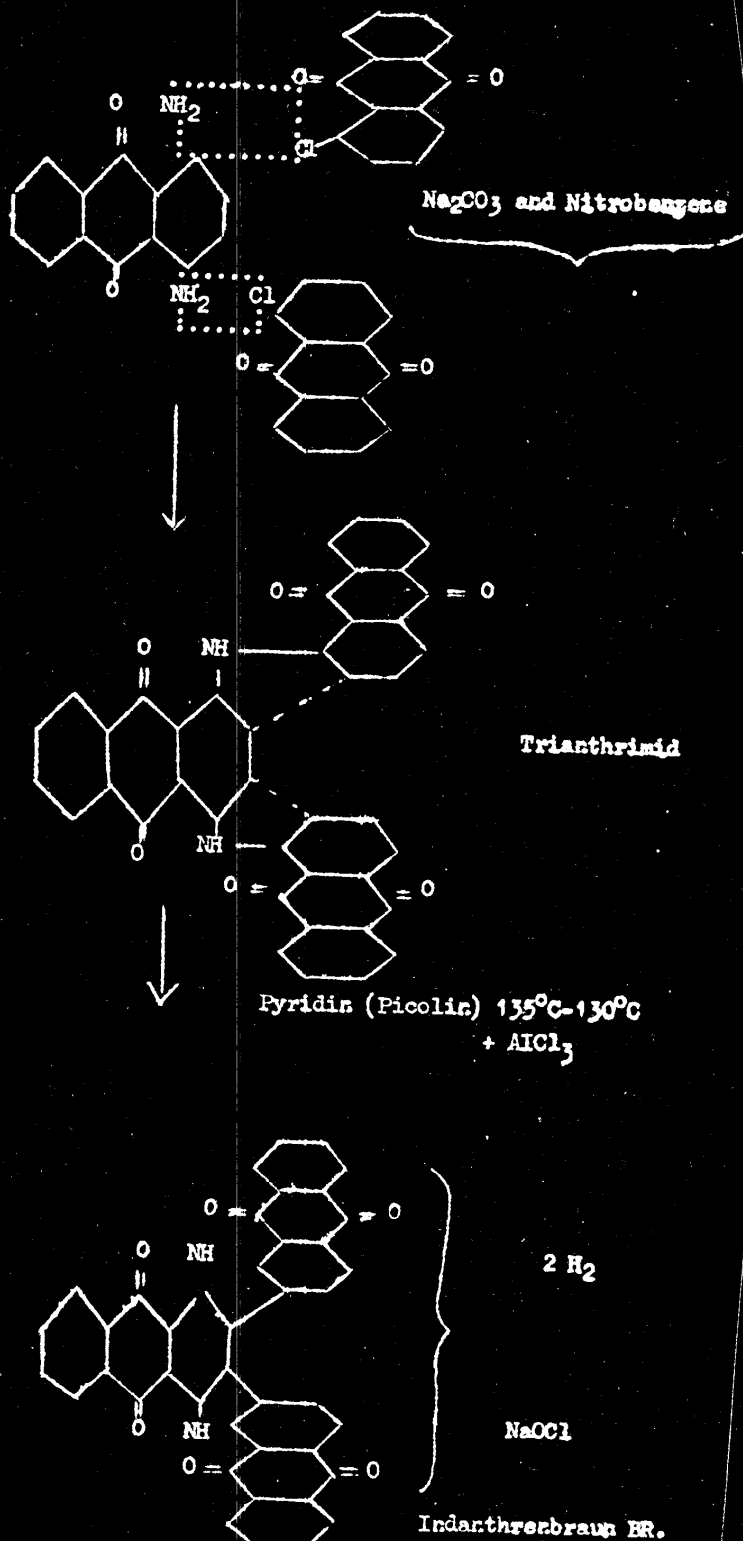
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Phase VII (continued)

Indanthrenbase BR

Method 2

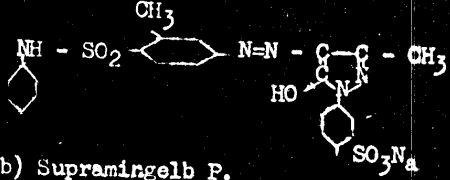
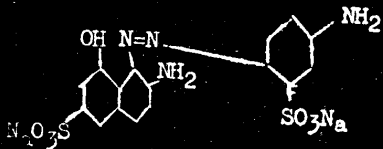


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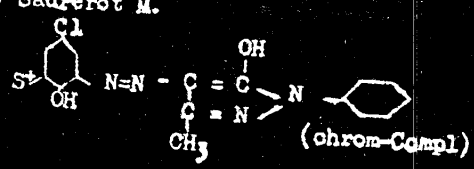
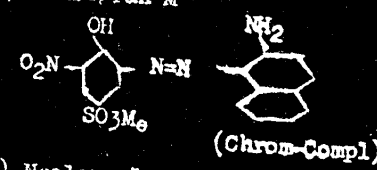
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7	(a) Saurechtgelb  (b) Supramingelb P. - - O	-	-	O
8	(a) Echtlichtgelb I (Russian letter) (b) Polargelb G (2G) (5G)	734	642	O
9	(a) Sauregelb 2 I M (b) Palatinechtgelb 6 GEN	-	-	O
10	(a) Saurechtorange (b) Echtlichtorange AT2G	39	27	X
11	(a) Saurebrillantorange I (b) Brillantorange G. Saureorange (b) Orange II	36 189	26 15	X X
13	(a) Saureorange I M (b) Palatinechtorange GEN.	-	-	O
14	(a) Saurescharlach (b) Scharlach 2R	95	79	X
15	(a) Saurerubin  (b) Azorubinol GW - - X	-	-	X
16	(a) Saurerot 3S (b) Azofuchsin 6B	110	57	O
17	(a) Saurerot 2 I (b) Saurewalkscharlach	539	252	X

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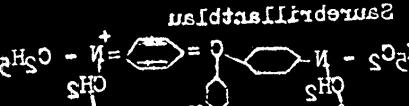
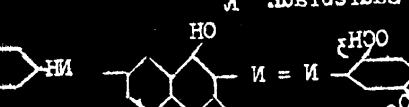
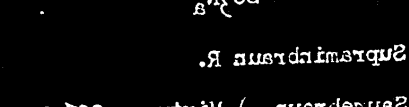
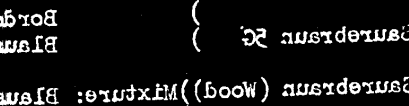
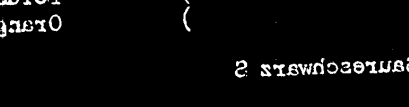
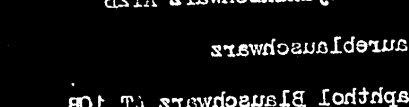
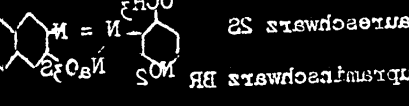
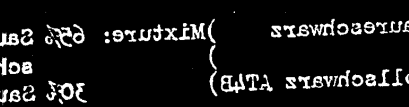
No.	(a) Russian Description (b) Ordinary Description	No. Schults	No. Colour Index	X - In Production O - Planned
29	(a) Saurerot M.  (b) Neolanrot K	-	-	O
30	(a) Saurebordo (b) Bordo AT	123	88	X
31	(a) Saurebordo M. (b) Neolanbordo B.	742	652	O
32	(a) Saureviolett S (b) Forinylviolett SYB.	805	697	X
33	(a) Saureviolett M (b) Neolanviolett	240	202	O
34	(a) Saureanthrochinonviolett (b) Alizariniviolett	1196	1073	O
35	(a) Saureviolett 2K (b) Saureechtviolett APR	871	758	O
36	(a) Sauregrün (b) Guineagrün B	764	666	X
37	(a) Sauregrün I (b) Naphthalingrün	777	735	X
38	(a) Sauregrün M  (b) Neolangrün G	-	-	O
39	(a) Saureoliv M (b) Neolanoliv 2G	-	-	O
40	(a) Saurehimmelblau (b) Sulfonsaureblau ATB; Saureblau 2S	248	209	X

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(a) Original Description	(b) Original Description	Schmitt's Index	Color Index	X - In Progression
(a) Sauerbrilliant 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant R. 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X
(a) Sauerbrilliant (Mixture: 50% Sauerbrilliant, 50% Sauerbrilliant R.) 	(b) Brilliant Schmitt's Index	-	-	X

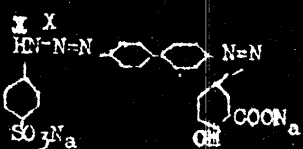
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Direktziehende - Dyestuffs
(Direct Application)

No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
1.	(a) Direktechtlichtgelb 3X (b) Baumwollgelb G.	342	346	X
2	(a) Chrysophenin Chrysophenin G.	726	365	X
3	(a) Direktgelb  (b) Amtgelb G.	-	-	X
4	(a) Direktazoechtgelb 8 (b) ?	749	654	O
5	(a) Direktechtgelb K (b) Sirius echtgelb FFR	935	814	O
6	(a) Direktechtgelb (b) Echtlichtgelb 4CL	308	349	O
7	(a) Direktorange  (b) Anilorange G.	480	478	X
8	(a) Direktbrillantorange (b) Anilechtorange S	305	326	X
9	(a) Direktechtorange K (b) Beizoechtorange 2RL	-	-	X
10	(a) Direktechtorange (b) Mikadoorange	706	621	X
11	(a) Direktparaorange (b) Paraorange	305	326	O
12	(a) Kongorot (b) Kongorot AT	360	370	X
13	(a) Direktscharlach (b) Anilechtscharlach 4BS	306	327	X

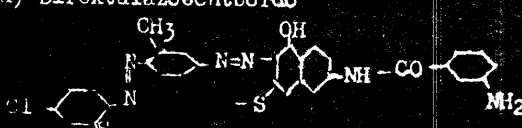
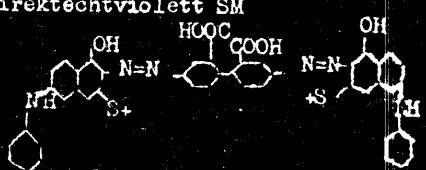
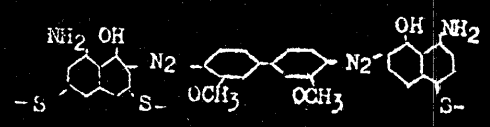
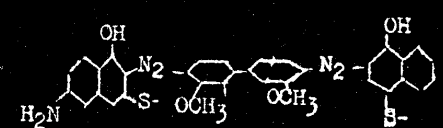
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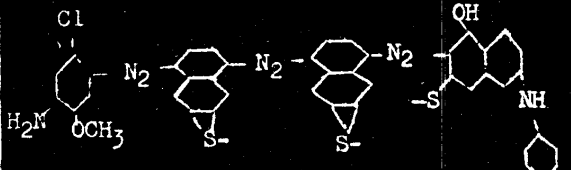
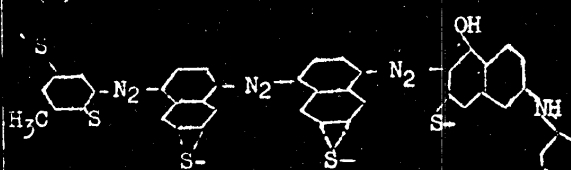
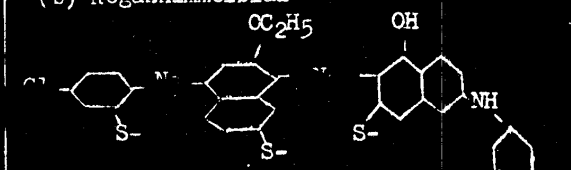
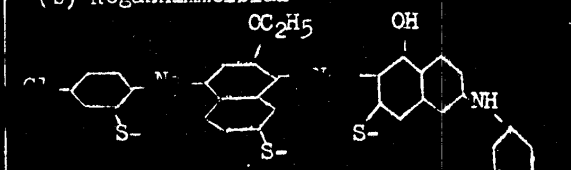
No.	(a) Russian Description (c) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
24	(a) Direkt Diazoechtbordo  (b) Diazoechtbordo BL	-	-	O
25	(a) Direktviolett (b) Anilviolett	395	394	X
26	(a) Direktviolett K (b) Anilviolett R	397	393	O
27	(a) Direktviolett S (b) Benzoechtviolett BBN	611	325	X
28	(a) Direktechtviolett SM  (b) Benzokupferechtviolett 20L	-	-	O
29	(a) Direktreinblau K (b) ? 	-	-	X
30	(a) Direktblau KM (b) Anilkupferblau B 	-	-	X
31	(a) Direkthimmelblau K (b) Diaminblau 2B	385	406	X

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No.	(a) Russian Description (b) Ordinary Description	Schultz	No. Colour Index	X - In Production 0 - Planned
40	(a) Direkt Diazohimmelblau (b) Diazoindigoblau 4 GL 	-	-	0
41	(a) Direktechtblau (b) Benzoechtblau 4 GL 	-	-	X
42	(a) Direktreinseidenblau (b) Regan Himmelblau 	-	-	0
43	(a) Direktblau 3X (b) Anildirektblau BN 	617	533	0
44	(a) Benzoazurin (b) Benzoazurin G	497	502	X
45	(a) Direktgrün (b) Diamingrün B	668	593	X
46	(a) Direktgrün X X (b) Anilgrün G	676	594	X
47	(a) Direkt dunkelgrün (b) Anildunkelgrün 2B	670	583	X

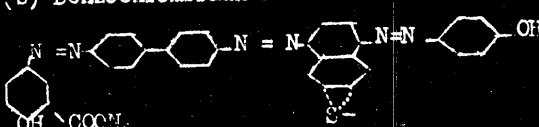
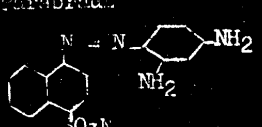
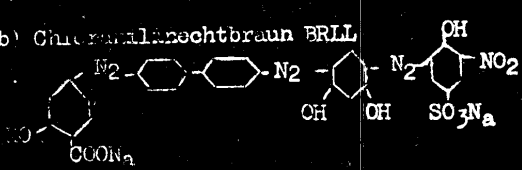
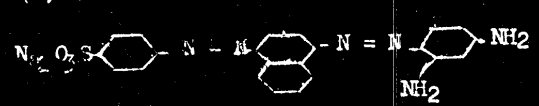
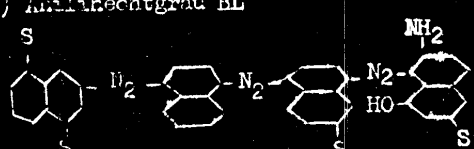
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No.	(a) Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
55	(a) Direktbraun E X (b) Anilbraun D3G	678	596	X
56	(a) Direktbraun 2 E X (b) Benzochrombraun G			
				
57	(a) Direktbraun 3 E X (b) Anilbraun 3 G H	678	596	O
58	(a) Direktbraun K (b) Anilbraun BK	694	612	X
59	(a) Direktbraun KX (b) Anilbraun K	412	420	X
60	(a) Direktparabraun (b) Parabraun	-	-	X
				
61	(a) Direktbraun E X (b) Chloraanilbraun BRLL	-	-	X
				
62	(a) Direktparabraun N (b) Parabraun	-	-	X
				
63	(a) Direktbraun (b) Anilbraun BL	-	-	X
				

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Mordant Dyestuffs - (For Wool and Cotton)

No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
1	(a) Beizengelb (b) Alizarinengelb 2 G	55	36	X
2	(a) Beizenreingelb (b) Chromazitronin	432	441	X
3	(a) Alizarinorange (b) Alizarinorange R	1143	1033	O
4	(a) Alizarinrot No. 1 (90% Alizarin 10% Flavopurpurin) (b) Alizarin	1141	1027	X
5	(a) Alizarinrot No. 2 (70% 1,2,7 Tri- oxyanthrachinon 30% 1,2,6 Tri- oxyanthrachinon) (b) Anthrapurpurin	1152	1040	X
6	(a) Alizarinrot No. 3 (b) Flavopurpurin	1154	1039	X
7	(a) Alizarinrot No. 4 ((20% 1,2 Diox- anthrachinon 40% 1,2,6 Tri- oxyanthrachinon 40% 1,2,7 Tri- oxyanthrachinon) (b)	1141	-	X
8	(a) Alizarinbordo (b) Alizarinbordo BD	1168	1045	O
9	(a) Galloviolet (b) Galloviolet DF	1007	892	O
10	(a) Gallocyanin	998	883	O
11	(a) Galloblau (b) Gallophenin D	994	879	O
12	(a) Alizarinblau BS (b) Alizarinblau S	1179	1067	X
13	(a) Gallogrün BS (b) Cerulei S	899	783	O

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CHROME DYE STUFFS
(Acid Mordant Dyes)

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No.	(a) Russian Description (b) Ordinary Description	No. Schults	No. Colour Index	X - In production 0 - Planned
1	(a) Saurechromgelb (b) Anthracengelb BN	230	195	X
2	(a) Saurechromgelb N (b) $\text{N}_2\text{O}_3\text{S} - \text{C}_6\text{H}_4 - \text{N}=\text{N} - \text{C}_6\text{H}_3(\text{OH})(\text{COON}_a)$			
3	(a) Saurechromorange (b) Chromorange GR	567	276	X
4	(a) Saurechromrot (b) Enachromrot B	742	652	0
5	(a) Saurealizarinrot (b) Alizarinrot IWS	1145	1034	X
6	(a) Saurechrombrillantrot (b) Neuchrombrillantrot R	?	?	X
7	(a) Saureanthrachinongrün (b) Alizarincyanningrün G	1201	1078	X
8	(a) Saurechromdunkelblau (b) Echtbeizenblau B $\text{OH} \quad \text{OH} \quad \text{OH}$ $\text{Cl} \quad \text{S} \quad \text{S}$			
9	(a) Saurechromolive (b) Metachromolive G	142	104	0
10	(a) Saurechromolive X (b) Saurechromolive 2G	146	358	X
11	(a) Saurechrombraun X (b) Saureanthracenbraun ATR	145	105	X

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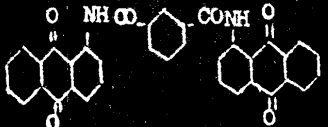
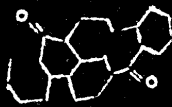
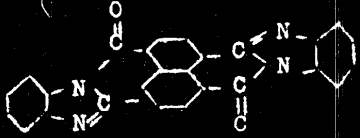
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Vat Dyestuffs

No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production 0 - Planned
1	(a) Kupergelb 23X (b) Indanthrengelb 5 GK 	-	-	0
2	(a) Kupergelb E (b) Flavanthren	1241	1118	0
3	(a) Kupergoldgelb I X (b) Indanthrengoldgelb GK 	-	-	X
4	(a) Kupergoldgelb KX (b) Indanthrengoldgelb RK (Dibrom derivative of 3)	-	-	X
5	(a) Kupergelb X (b) Helindorgelb	1250	1138	0
6	(a) Kupergelb I X (b) Indanthrengelb GK	1220	1132	0
7	(a) Kuperlichtgelb 6 X (b) Indanthrengelb 6 GD	-	-	X
8	(a) Thioindigo Orange KX (b) Helindon Orange R	1349	1217	X
9	(a) Kuperbrillantorange (b) Indanthrenbrillantorange GR 			X

(Mixt. cis and trans)

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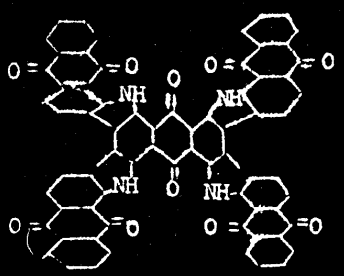
No.	(a) Russian Description (b) Ordinary Description	No.	No.	X - In
		Schultz	Colour Index	production O - Planned
1	(a) Auramin. (b)	752	655	X
2	(a) Basischgelb 3 (b) Akridingelb G	901	785	O
3	(a) Chrysoidin (b)	27	20	X
4	(a) Basischbraun (b) Bismarckbraun	318	332	X
5	(a) Safranin (b) Safranin T	967	841	X
6	(a) Rhodamin S (b) Rhodamin B	864	749	O
7	(a) Rhodamin X (b) Rhodamin 6GDN	866	752	O
8	(a) Fuchsin (b) Neufuchsin	782	678	O
9	(a) Fuchsin (b)	780	677	X
10	(a) - (b) Parafuchsin	779	676	O
11	(a) Basischbrillantgrün (b) Brillantgrün	760	662	X
12	(a) Malachitgrün (b)	754	657	X
13	(a) Methylenblau (b) Methylenblau	1038	922	X

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
23	(a) Kupendunkelblau O (b) Indanthrendunkelblau BO (Violanthren)	1261	1099	X
24	(a) Indanthrenviolett (b) Isoviolanthron	1264	1103	X
25	(a) Kuperbrillantgrün S (b) Indanthrenbrillantgrün B	1269	1101	X
26	(a) Kuperbrillantgrün K (b) Indanthrenbrillantgrün CG	1269	-	X
27	(a) Kuperbraun K (b) Indanthrenbraun R	1227	1151	X
28	(a) Kuperbraun CK (b) Indanthrenbraun BR	-	-	O
29	(a) Kuperoliv K (b) Indanthrenoliv R	1224	1150	X
30	(a) Kuperbrillantorange KX (b) Indanthrenbrillantorange RK	-	-	X
31	(a) - (b) Indanthren Khaki 2R	-	-	O
32	(a) Kupergrau (b) Indanthrengrau	-	-	O
33	 A further 2 type. of Blacks planned. 23 in production. 11 planned.			

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Naphthol as Dyestuffs
(Diazo Compounds)

No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
1	(a) Azoamingelb O (b) Echtgelb Base G (O-Chloraniline)	49	-	X
2	(a) Azoaminorange (b) Echterorangebase G (M-Chloranilin)	49	-	O
3	(a) Azoaminorange K (b) Echterorangebase R (M-Nitranilin)	53	38	X
4	(a) Azoaminorange O (b) Echterorangebase GR (O-Nitraniline)	52	-	X
5	(a) Azoaminscharlach 2 (b) Echtscharlach Base GG (2.5 Dichloranilin)	50	-	X
6	(a) Azoaminscharlach (b) Echtscharlach G-Base (4 Nitro-2-Toluidine)	85	68	X
7	(a) Azoaminscharlach K (b) Echtscharlach R-Base (4 Nitro-O-Anisidine)	154	118	X
8	(a) Azoaminrot (b) Echtrot 2C-Base (p-Nitranilin)	60	44	X
9	(a) Azoaminrot 2C (b) Echtrot 3GL-Base (2 Nitro - 4 Chloranilin)	69	-	O
10	(a) Azoaminrot A (b) Echtrot GL-Base (3 Nitro - 4 Toluidine)	86	69/70	X
11	(a) Azoaminrosa O (b) Echtrot B-Base (5 - Nitro-O-Anisidine)	115	117	X
12	(a) Azoaminrot K (b) Echtrot R-Base (5-Chlor-O-Anisidine)	153	116	O
13	(a) Azoaminrot C (b) Echtrot KB-Base (4-Chlor-O-Toluidine)			

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Naphthol - AS - Dyestuffs

No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production 0 - Planned
1	(a) 2-Naphthol (b) 2-Naphthol	-	-	X
2	(a) Azotol A (b) Naphthol AS	50	-	X
3	(a) Azotol OT (b) Naphthol AS-D	50	-	X
4	(a) Azotol BNF (b) Naphthol AS-S	50	-	0
5	(a) Azotol PA (b) Naphthol AS-RL	50	-	X
6	(a) Azotol OA (b) Naphthol AS-OL (O-Anisidiol)	-	-	X
7	(a) Azotol O (b) Naphthol AS-ITR (5-Cl-2,4 dimethoxy-anilidiol)	-	-	0
8	(a) Azotol MNA (b) Naphthol AS-BS	50	-	0
9	(a) Azotol ANF (b) Naphthol AS-BO	50	-	X
10	(a) Azotol OF (b) Naphthol AS-PA (?) (O-Phenetidiol)	-	-	X
11	(a) Azotol Z (b) Naphthol AS-G	49/50	-	0
12	(a) Azotol K (b) Naphthol AS-LB (4-Chloramisidiol)	-	-	0
13	(a) Azotol OMA (b) Naphthol AS-BG (2,5-Dimethoxy-anilidiol)	-	-	0
Of 13 Naphthol AJ 7 in production 6 planned				

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production 0 - Planned
12	(a) Phthalocyaninblau (b) Monastralblau (Phthalocyanin)	-	-	X
13	(a) Pigmentblau (b) Heliomarin RL	1187	1054	0
14	(a) Pigmentgrün (b) Pigmentgrün B	5	5	X
15	(a) Pigmentparabraun (b) Parabraun	-	-	0

O=[N+]([O-])c1ccc(cc1)/N=N/c2ccc(cc2)N

Of 15 Pigment dyestuffs
 10 in production
 5 planned

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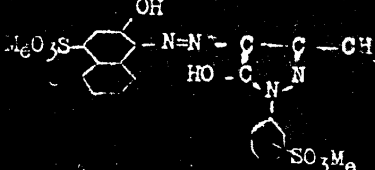
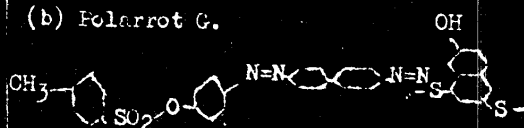
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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
18	(a) Saurerot (b) Crocothlscharlach AT (3BX)	214	183	X
19	(a) Saurerot N. (b) Crocothlscharlach 3B	564	277	X
20	(a) Saurebrillantrot (b) Brillantwalfuchsin ATG	40	31	X
21	(a) Saurerot X (b) Echrot ATA	206	176	X
22	(a) Saurerot S (b) Echrot ATNS (Amarant)	212	184	X
23	(a) Saurerot 2S (b) Carmaisin AT	208	179	X
24	(a) Saurerrosa M 	-	-	O
25	(a) Saureechtrot (b) Neutralrot NB	379	430	O
26	(a) Eosin (b) Eosin	881	768	O
27	(a) Saureanthrochinonrubin (b) Alizarinrubinol GW.	1210	1091	O
28	(a) Saurechtscharlach (b) Polarrot G. 	-	-	X

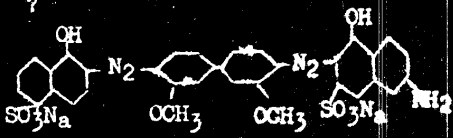
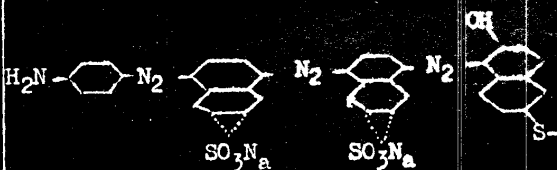
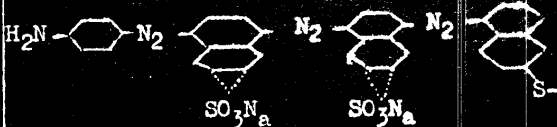
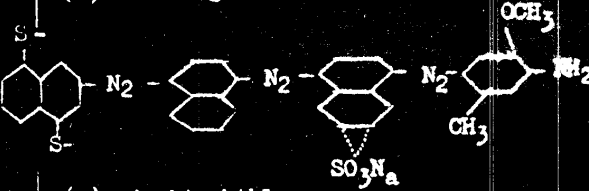
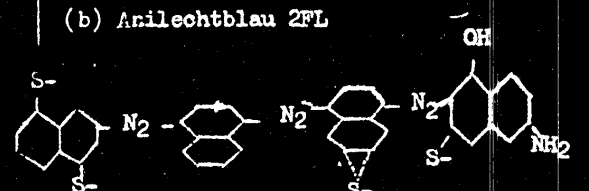
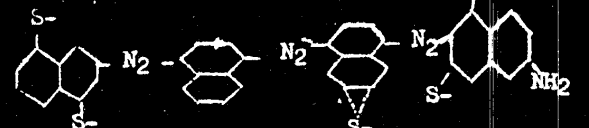
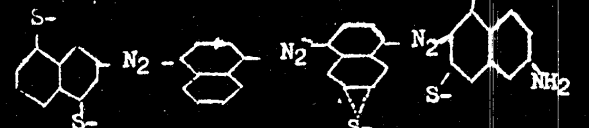
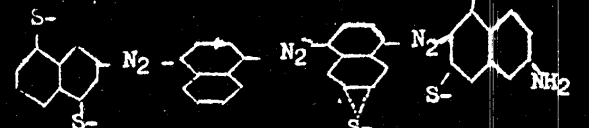
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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production 0 - Planned
32	(a) Direktblau M (b) ? 	-	0	X
33	(a) Direktindigoblau (b) Anilindiazoblau BR 	-	-	X
34	(a) Direktblau (b) Anilblau RW 	507	512	X
35	(a) Direktindigoblau K (b) Diaminogenblau NA 	-	-	X
36	(a) Direktechtblau (b) Anilechtblau 2FL 	-	-	X
37	(a) Direktechtblau K (b) Anilechtblau FR 	617	533	X
38	(a) Direktindigoblau (b) Direktreinblau N 	573	520	X
39	(a) Direktreinindigoblau (b) Chikagoblau 6B 	570	518	X

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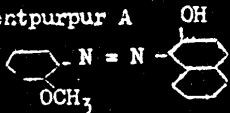
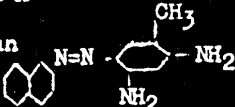
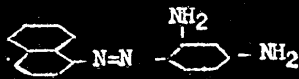
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Colours for Fats ('Indane')
(Fettfarbstoffe)

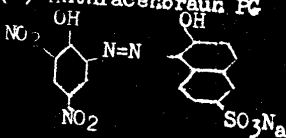
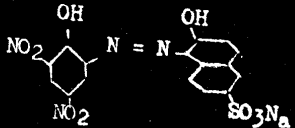
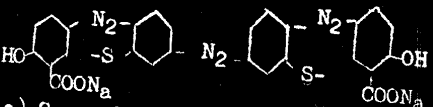
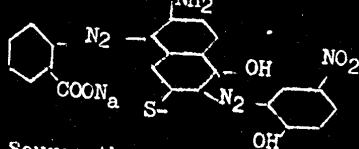
No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
1	(a) Fettgelb (b) Fettgelb AB 	-	-	O
2	(a) Fettorange (b)	33	24	X
3	(a) Fettrot E (b) Indan III	532	248	X
4	(a) Fettdunkelrot (b) Indan IV	541	-	X
5	(a) Fettrot C (b) Pigmentpurpur A 	-	-	X
6	(a) Fettbraun K (b) Indanbraun 	-	-	X
7	(a) Fettbraun (b) Typaphurbraun PR 	-	-	X
7 Colours for Fats 6 in production 1 planned				

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
12	(a) Saurechrombraun I (b) Anthracenbraun FG 			
13	(a) Saurechrombraun 2S (b) 			
14	(a) Chromogen I (b) Chromatrop	1136	1026	X
15	(a) Saurechrombraun JK (b) Neuchrombraun 3 RD 			
16	(a) Saurechrombraun Schwarz (b) Chromlauschwarz AT 6B	240	202	X
17	(a) Saurechromschwarz (b) Diamantschwarz ATB	614	299	X
18	(a) Saurechromschwarz S (b) Enochromschwarz A	242	204	X
19	(a) Saurechromschwarz O (b) Diamantschwarz FG 	-	-	X
20	(a) Saureanthrachinonblauschwarz (b) Alizarinblauschwarz B			

Of 20 18 made
2 planned

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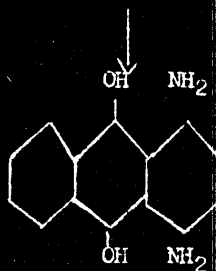
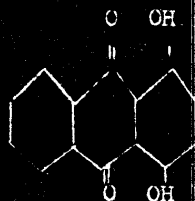
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Phase VII

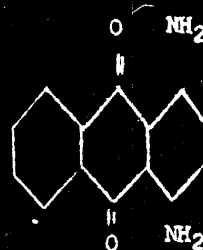
Synthesis of 'Indanthren. Braun BR' (LEVERKUSEN) (Until end Feb. 1984)

Method 1

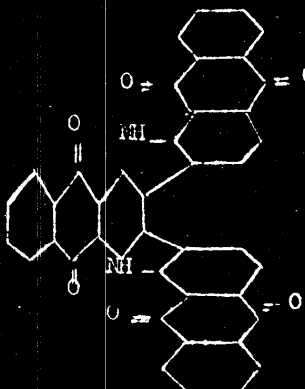
Chinzarin



1,1,4 Diamino-leukoanthraquinone



1,4 Diamino-anthraquinone



'Indanthren. Braun BR'

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A. Introductory and General Remarks

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the dismantling

listed the following as having been moved:-

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- (a) The "Stabilisator anlage" (S.T. anlage)
- (b) The "Phosgene anlage"
- (c) The "Linde anlage" (oxygen and nitrogen part)
- (d) "Gipschwefel saure anlage"
- (e) The "Metchrome farbstoff anlage"
- (f) The "Vanillin anlage"
- (g) The "Sulphur black anlage"
- (h) "Dinitro anisole anlage"
- (i) "Hydrochinon anlage"
- (j) Miscellaneous and laboratory equipment, such as small autoclave plant, laboratory size, drying ovens and table motors, microscopes and half the laboratory. Also removed were some of the autoclaves in the bisol plant, the paranitraniline and orthopnitraniline and other small plant.

There were besides quite a number of items of copper and silver equipment such as distillation columns from the perfume plant; these were broken up on arrival.

2. [redacted] there may originally have been an intention of reconstructing the plants as they were originally dismantled but that the intention was not fulfilled and the plants were, so far as he knew, all rotting away on dumps. German PWs. who handled such items of plant took good care to sabotage them wherever they could and also invariably delicate equipment was broken. When the materials were handled by Russians more often than not owing to clumsiness the same results were achieved. It is interesting to note that the plant and equipment at WOLFEN when dismantled and packed was marked with the destination to which it was being sent in Russia.

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(Note [redacted] This was entirely in contradistinction to normal Russian practice in these matters.)

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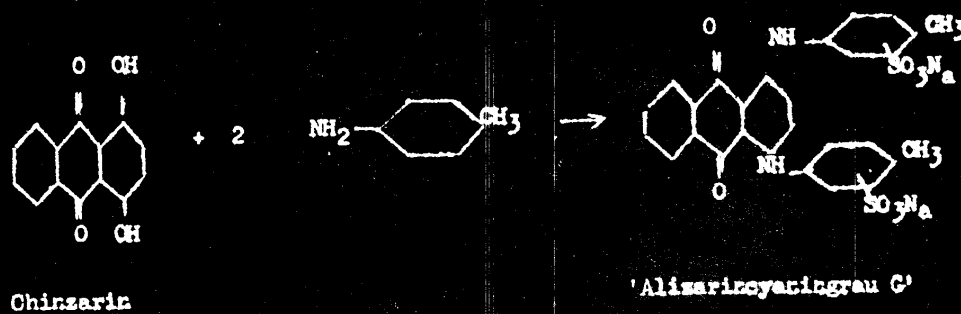
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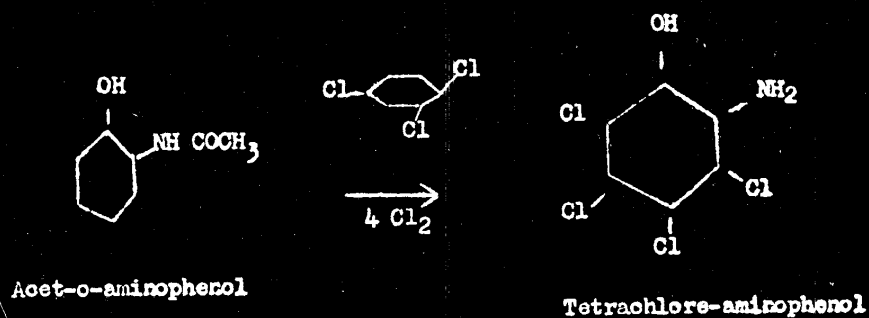
Phase IV

Synthesis of 'Alizarinoyalingrau G' (until Dec. 1950)



Phase V

Synthesis of Tetrachlor - aminophenol for Metachrombordo BL (until Dec. 1951)

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called GLAVANILFROM. The production and research interests jointly involved in this came under the Ministry of Chemical Industry.

4. It should, however, be noted that where matters of plant design were concerned, the main organisation responsible for initial pilot-planting and development of process plant, was GLAVANILFROM, which also maintained a department at RUBENNOYE. Questions on installation of plant were discussed between the representatives of this organisation and the technical management of the KHIM KOMBINAT itself. The full name of the factory at RUBENNOYE was KHIM KOMBINAT IMYENI K.A. VOROSHILOVA.

5. Originally, the German specialists were engrafted on to the NIOPIK organisation and were fully administered by the chemical Kombinat itself, then although engaged on NIOPIK work the specialists went "through" the factory to the Ministry of Chemical Industry. Later, in order to improve the direction of the programme, to avoid administrative difficulties which tended to involve the factory in NIOPIK affairs and also, perhaps, to obtain credit for MOSCOW headquarters, the whole group became more directly administered by MOSCOW coming under NIOPIK headquarters; these changes took place in 1947.

6. Although the NIOPIK organisation had some say in the setting of priorities for development of products they often had the utmost difficulty in obtaining materials. This in part perhaps originated in the very sharp divisions of responsibility in Russian organisations in the extreme rigidity in Russian planning. Such planning has considerable advantages in that the tight system of delivery dates and strict penalties for non-fulfilment were very necessary in Russia, where the national character is both evasive and avaricious. The disadvantages are also very great when it is necessary to show a degree of flexibility in handling unforeseen situations which arise all too often in the chemical industry.

7. The character of the work and the personalities involved in it are briefly shown in the attached table. It will be seen that the programme divides itself roughly into the following heads:-

- (a) Intermediates of Azo and vat dyestuffs
- (b) Thio indigo
- (c) Indanthrene
- (d) Naphthol A.S. dyestuffs
- (e) Triphenylmethane dyestuffs
- (f) Fur dyes
- (g) Indicators
- (h) Textile chemicals
- (i) Insecticides
- (j) Para-amino Salicylic acid
- (k) Analytical chemistry
- (l) Physics
- (m) High pressure research (organic syntheses - dyestuffs and intermediates)
- (n) Catalysts
- (o) Engineering - Plant development connected with projected syntheses
- (p) Miscellaneous projects such as electro-technical syntheses of hydrazobenzol using sodium amalgam

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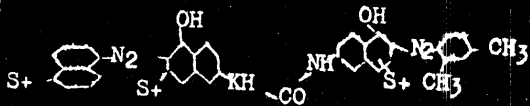
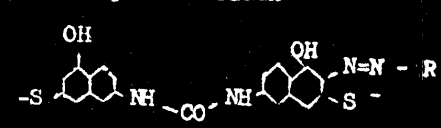
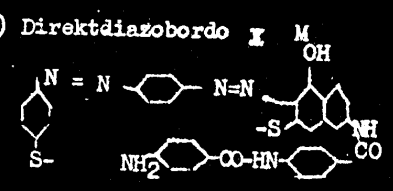
No.	(a) Russian Description (b) Ordinary Description	No.	No.	X - In production O - Planned
		Schultz	Colour Index	
14	(a) Beizengrün BS (b) Viridon, Sambin 1, Nitroso - 2 Naphthol	2	2	X
15	(a) Alizarinbraun (b) Anthragallol	1156	1035	O
Of Mordant dyes 8 in manufacture 7 planned.				

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
14	(a) Direktrot K (b) Anilechtrot F	410	419	X
15	(a) Direktrose 2S 	-	-	X
16	(a) Direktrot 2S (b) Anilechtscharlach 8BA	305	326	X
17	(a) Direkt Diazoscharlach (b) Diazobrillantscharlach BG	88	324	X
18	(a) Direktechtrosa S (b) Benzoechtrosa 2BL	340	353	X
19	(a) Direktrot 3S (b) Benzorodulinrot B	305	-	O
20	(a) Direktparascharlach 	-	-	O
21	(a) Direktbordo (b) Anilbordo B	377	382	X
22	(a) Direktechtrot 2S (b) Benzoechtrot 8BL	566	278	O
23	(a) Direkt Diazobordo X 	-	-	X
	(b) Diazokupfebordo B	-	-	X

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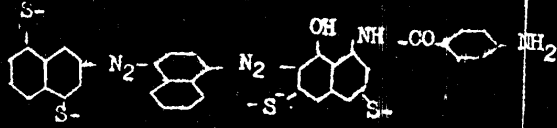
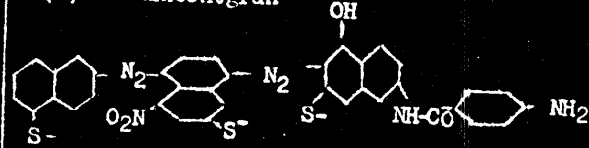
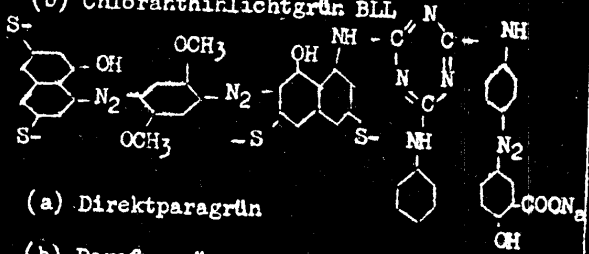
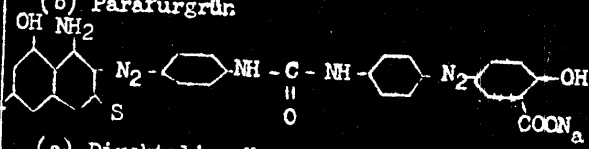
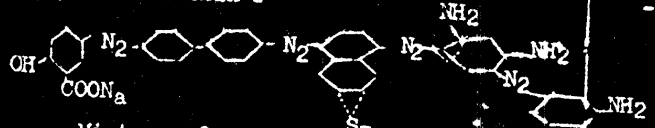
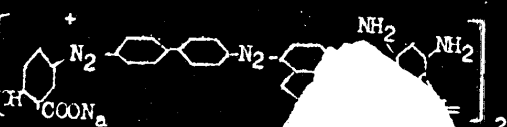
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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
48	(a) Anildiazobillantgrün 2 X (b) Anildiazobillantgrün 2G 	-	-	O
49	(a) Oxaminechtgrün 	-	-	-
50	(a) Direktazogrün X (b) Diazobillant 3G	598	-	X
51	(a) Direktechtgrün (b) Chloranthinlichtgrün BLL 	-	-	O
52	(a) Direktparagrün (b) Parafurgrün 	-	-	X
53	(a) Direktolive X (b) Anilbronze G	644	559	X
54	(a) Direktbraun X (b) Anilkatechin G  Mixture of: 	-	-	-

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production G - Planned
62	(a) Saureschwarz) Mixture: 52% Saureblau-) schwarz (b) Wollschwarz AT4BK) 38% Echtorange) 10% Saureschar-) lach	-	-	X
63	(a) Tintenschwarz (b) Tintenschwarz	-	-	X
Altogether 63 dyestuffs of which 39 were in production and 24 were planned.				

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
14	(a) Basischblau K (b) Neuviktoriablau B	821	728	X
15	(a) Basischblau (b) Viktoriablau B	821	728	O
16	(a) Basischhimmelblau (b) Thiominblau O	1042	926	O
17	(a) Neumethylenblau (b) Methylenblau K (?)			
18	(a) Basischhimmelblau 3 (b) ?			
19	(a) Basischdunkelblau (b) Meldolablau	1025	909	O
20	(a) Basischviolett K (b) Methylviolett B	783	680	X
21	(a) Basischviolett S (b) Aethylviolett	787	682	O
20 dyestuffs 10 in manufacture 11 planned				

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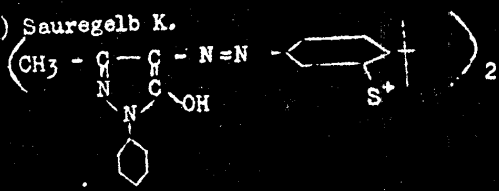
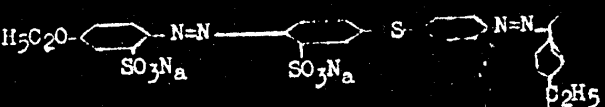
2. Tabulated Summary of Dyestuffs and Pigments
in Production or projected at RUBESNOYE

Appended is a list of dyes and pigments produced or about to be produced i.e. in course of development at RUBESNOYE. The Russian and German designations are given, together with the characteristic SCHULTZ and Colour Index numbers which obtain as would be derived by reference to SCHULTZ JULIUS Dyestuff tables.

Very many of these products are, of course, German ones taken from WOLFEN, LUDWIGSHAFEN or LEVERKUSEN. Sometimes when no appropriate German equivalent is shown it means that the dye has been of little interest in Germany and has been allowed to lapse.

The range shown does, however, tend to off-set the disparaging remarks made about the Russian dyestuffs industry by all returnees seen so far, since there would appear to be a fair range of products developed largely without the benefit of German superior wisdom.

Acid Dyestuffs

No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
1	(a) Saurelichtgelb (b) Echtlichtgelb ATG	732	6	X
2	(a) Sauregelb (b) Indisgelb G.	182	146	O
3	(a) Metanilgelb (b) Metanilgelb AT. Sauregelb O	169	138	X
4	(a) Sauregelb K. $\left(\text{CH}_3 - \underset{\text{N}}{\underset{\text{N}}{\text{C}}} - \underset{\text{C}}{\text{C}} - \text{N}=\text{N} - \text{C}_6\text{H}_4 - \text{S}^+ \right)_2$  (b) Sulfongelb R, 5 (a) Naphtholgelb (b) Naphtholgelb S (a) Saurewalkgelb N.  (b) Walkgelb O	- - 19 -	- - 10 -	O O X O

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Brief Summary of the Work
at KUMEROYS. (NIOPIK).

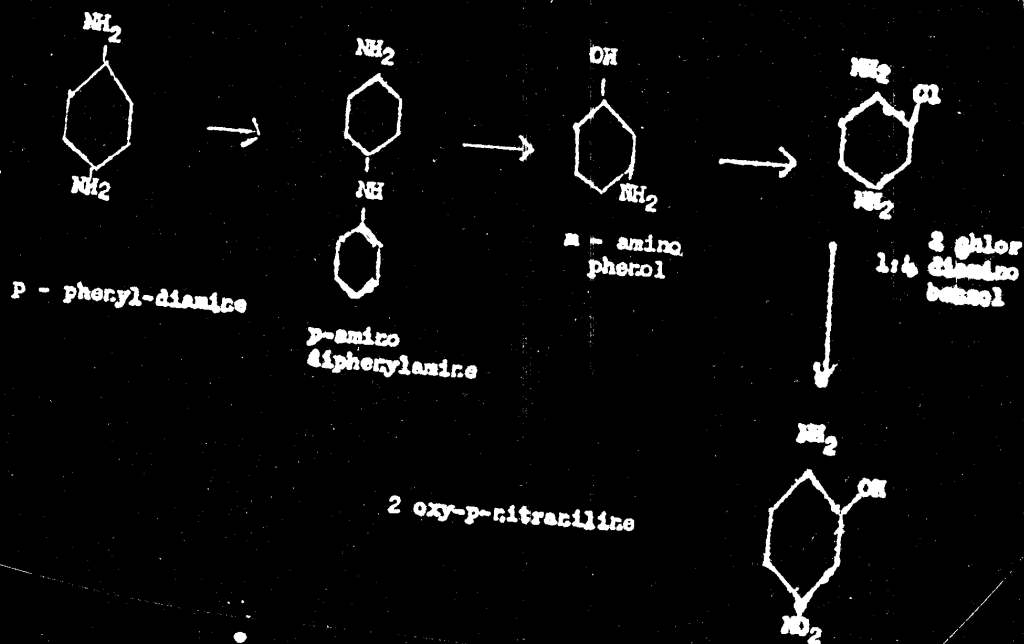
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Phase I.

Synthesis of 2 oxy-para nitraniline

The series of reactions was as follows:

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No.	(a) Russian Description (b) Ordinary Description	No.	No.	X - In production O - Planned
		Schults	Colour Index	
41	(a) Saureblau 2K (b) Sulfonsaureblau ATR	247	208	X
42	(a) Sauredunkelblau (b) Sulfoncyanin AT 5R; GR	552	288	X
43	(a) Saureanthrachinonblau (b) Alizarinsaphirol SE	1188	1023	X
44	(a) Saureanthrachinonbellblau (b) Alizarinaskantressiblau SE	-	-	O
45	(a) Saureblau K (b) Sulfoncyanin ATGR	552	289	X
46	(a) Saurelichtblau 0 (b) Saurebrillantblau Z (?)	774	673	X
47	(a) Saurebrillantblau 3 (b) ? Triphenylmethanfarbstoff: + 2 Mol Diethylamine Benzaldehyde Disulfide	-	-	X
48	(a) Sauredunkelblau (b) Wollechtsblau BL	974	833	X
49	(a) Sauredunkelblau 3 (b) Wollechtsblau GL	974	833	O
50	(a) Basischtsblau (b) -	813	704	O
51	(a) Saureblau 2SM (b) Neolanblau 6B	240	202	O
52	(a) Wasserblau (b) Wasserblau	816	707	O

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Fur Dyestuffs

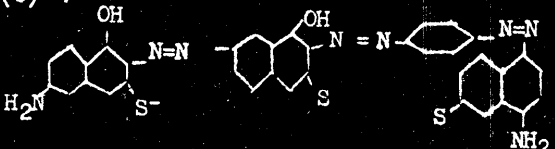
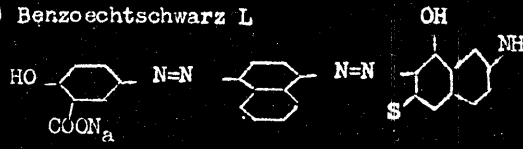
No.	Structure	X - In production 0 - Planned
1 Pelzgelb	O-Aminophenol	0
2 Pelzgelb N	2-Nitro-1,4 Diamino Benzol	X
3 Pelzbraun T	2,4-Diamino Toluol	X
4 Pelzbraun A	p-Aminophenol	X
5 Pelzbraun AN	1,5 Aminonaphthol	X
6 Pelzgrün	α Nitroso- β Naphthol	X
7 Pelzgrau A	p-Aminodiphenylamine	0
8 Pelzgrau D	Dimethyl-p-phenylendiamin	X
9 Pelzgrau DA	2,4 Diaminoanisolsulfat	X
10 Pelzschwarz D	p-Phenylendiamine	X
Of 10 types 8 in production 2 planned		

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
64	(a) Direktazoschwarz (b) Anilindiazoschwarz D	555		O
65	(a) Direktdiazoschwarz S (b) Anildiazoschwarz BX	393	401	X
66	(a) Direktdiazoschwarz 2K (b) ? 	-	-	X
67	(a) Direktdiazodunkel Grau (b) Benzoechtschwarz L 	-	-	X
68	(a) Direktschwarz K (b) Anilschwarz RW	669	581	X
69	(a) Direktschwarz J (b) Anilschwarz E	671	582	X
70	(a) Direktschwarz N (b) Anilschwarz EF	628	539	X
71	(a) Direktschwarz für Chromleder (b) Chromleder Schwarz Mixture: 92% Direktschwarz J 8% Direktdiazoschwarz	-	-	X

Altogether 71 dyestuffs
52 made and 19 planned.

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No.	(a) Russian Description (b) Ordinary Description	No. Schultz	No. Colour Index	X - In production O - Planned
14	(a) Azoaminrot 3C (b) Ehtrot RL-Base (5-Nitro-O-Toluidine)	82	-	X
15	(a) Azoaminrot O (b) Ehtrot ITR-Base (5 Diacetyl Sulphamid- amino-2 Methoxybenzol)			
16	(a) Azoaminobordo O (b) - (5-Chlor - 2,4 Dimethoxyanilin)	-	-	O
17	(a) Azoamingranat X (b) Aminoazotoluol	73	17	X
18	(a) Azoaminogranat C (b) (d-Naphthylamin)	118	82	X
19	(a) Azoaminogranat 2C (b) (Benzidinesulphate)	351	381	X
20	(a) Azoaminbraun O (b) Aminoazobenzol	26	15	X
21	(a) Azoaminblau O (b) Variaminblau B (4 Amino-4'Methoxy- diphenylamin)	-	-	X
22	(a) Azoaminblau C (b) Dianisidine Chlorhydrat	490	499/500	X
23	(a) Azoaminblau 2C (b) Ehtblau 2B-Base (2.5 diethoxy- 4 benzoyl- lamino - 1 aminobenzol)	-	-	X
24	(a) Azoaminblau K (b) (O-Toluidine)	-	-	X
25	(a) Azoaminschwarz O (b) Echtschwarz LB-Base (O-Phenetol-azo- naphthylamin)	-	-	O
26	(a) Azoaminviolett C (b) Ehtviolett B-Base (5 Amino-2 Benzoylamino - p-Cresol Methylether)			X
	19 in production 7 planned			

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Pigment Dyestuffs

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