

*Citation:*

F.M.Jaeger, On the crystal-forms of the 2,4-Dinitroaniline-derivatives, substituted in the NH<sub>2</sub> group., in: KNAW, Proceedings, 9 I, 1906, Amsterdam, 1906, pp. 23-25

in the heated sodium phenylcarbonate, and as no disodium-salicylate has been found it cannot have been caused by the formation of that compound.

I have not been able to find the looked for additive product; perhaps it has been decomposed by acetone in the same manner as sodium phenylcarbonate. The results obtained show in my opinion that the formation of salicylic acid from sodium phenylcarbonate is not so simple as is generally imagined.

A more detailed account of research will appear in the "Recueil".

**Chemistry.** — "*On the crystal-forms of the 2,4-Dinitroaniline-derivatives, substituted in the NH<sub>2</sub>-group*". By Dr. F. M. JAEGER.  
(Communicated by Prof. P. VAN ROMBURGH).

(Communicated in the meeting of April 27, 1906).

More than a year ago I made an investigation as to the formation of a series of position-isomeric *Dinitroaniline*-derivatives<sup>1)</sup>. On that occasion it was shown how these substances exhibit, from a crystallonomic point of view, a remarkable analogy which reveals clearly the morphotropic influence of the hydrocarbon-residues, substituted in the NH<sub>2</sub>-group.

Among the compounds then investigated, there were already a few 1-2-4-*Dinitroaniline*-derivatives kindly presented to me by Messrs. VAN ROMBURGH and FRANCHIMONT. Through the agency of Prof. VAN ROMBURGH and Dr. A. MULDER, I have now received a series of other derivatives of 2,4-*Dinitroaniline* which in the happiest manner complete my former publications. I wish to thank these gentlemen once more for their kindness. I will describe and illustrate all these derivatives in a more detailed article in the *Zeits. f. Kryst.*

For the present I will merely give a survey of the results obtained, which have been collected in the annexed table.

I have chosen such a form-symbolic, that the morphotropic relation of the great majority of these substances is clearly shown. They all possess the same family-character which is shown in the values of the axial relations and the topic parameters. Only a few of these substances show no simple relationship with the other ones.

<sup>1)</sup> JAEGER, Ueber morphotropische Beziehungen bei den in der Amino-Gruppe substituierten Nitro-Anilinen; *Zeits. f. Kryst.* (1905). **40**. 113—116.

No.	Name of the compound	Survey of the crystallographically-investigated derivatives of 1-2-4-Dinitro-Aniline.						No.
		M.p.	Mol. weight.	Equiv. Vols. (in the solid state)	Symmetry:	Axial-Elements:	Topic Parameters:	
1	1-2-Nitro-Aniline.	72°	138	95.70	Rhomb. bipyrr.	a : b : c = 1.3607 : 1 : 1.4585.	$\chi : \psi : \omega = 5.3635 : 3.9245 : 4.5405$	1
2	1-4-Nitro-Aniline.	140°	138	96.03	Mon. prism.	a : b : c = 2.0350 : 1 : 1.4220; $\beta = 88°10'$	$\chi : \psi : \omega = 6.5406 : 3.2141 : 4.5704$	2
3	1-2-4-Dinitro-Aniline.	182°	183	113.30	Mon. prism.	a : b : c = 1.9828 : 1 : 1.4083; $\beta = 85°14'$	$\chi : \psi : \omega = 6.8206 : 3.4403 : 4.3467$	3
4	1-2-4-6-Trinitro-Aniline.	110°	228	129.39	Mon. prism.	a : b : c = 1.0560 : 1 : 1.5208; $\beta = 80°47'1''$	$\chi : \psi : \omega = 5.9313 : 3.8119 : 5.7975$	4
5	1-4-Nitro-Diethyl-A.')	78°	194	102.07	Mon. prism.	a : b : c = 1.0342 : 1 : 0.9694; $\beta = 80°34'$	$\chi : \psi : \omega = 5.0210 : 5.4351 : 5.3775$	5
6	1-2-4-Dinitro-Methyl-A.	178°	197	125.24	Mon. prism.	a : b : c = 1.3286 : 1 : 0.9707; $\beta = 83°28'$	$\chi : \psi : \omega = 5.8090 : 4.7281 : 4.5897$	6
7	1-2-4-Dinitro-Ethyl-A.	114°	211	145.44	Triclin. pinac.	a : b : c = 1.9251 : 1 : 0.9745 $\alpha = 33°25'1'' \beta = 83°22'1'' \gamma = 75°41'1''$	$\chi : \psi : \omega = 6.2321 : 5.0571 : 4.8880$	7
8	1-2-4-Dinitro-Dimethyl-A.	87°	211	142.95	Rhomb. bipyrr.	a : b : c = 1.2154 : 1 : 1.0803.	$\chi : \psi : \omega = 5.8035 : 4.7750 : 5.1583$	8
9	1-2-4-6-Trinitro-Dimethyl-A.	154°	256	165.05	Rhomb. bisfon.	a : b : c = 1.2930 : 1 : 1.3831.	$\chi : \psi : \omega = 5.8455 : 4.5184 : 6.2493$	9
10	1-2-4-Dinitro-Methyl-Ethyl-A.	50°	225	157.45	Triclin. pinac.	a : b : c = 1.1407 : 1 : 1.0393. $\alpha = 75°46' \beta = 92°39' \gamma = 68°57'$	$\chi : \psi : \omega = 5.1900 : 4.5140 : 7.5106$	10
11	1-2-4-Dinitro-Diethyl-A.	80°	239	173.94	Rhomb. bipyrr.	a : b : c = 1.2048 : 1 : 1.1513.	$\chi : \psi : \omega = 6.0294 : 5.0058 : 5.7631$	11
12	1-2-4- + 1-3-4-Dinitro-Diethyl-A. (Double compound.)	50°	478	1(381.02)	Mon. prism.	a : b : c = 1.3435 : 1 : 1.3013; $\beta = 80°39'$	$\chi : \psi : \omega = 6.3064 : 4.0940 : 6.1083$	12
13	1-2-4-6-Trinitro-Diethyl-A.	104°	284	192.41	Mon. prism.	a : b : c = 1.1750 : 1 : 0.9462; $\beta = 86°28'$	$\chi : \psi : \omega = 6.5523 : 5.5702 : 5.2703$	13
14	1-2-4-Dinitro-Ethyl-n-Propyl-A.	55°	253	189.13	Rhomb. bipyrr.	a : b : c = 1.0835 : 1 : 0.9227.	$\chi : \psi : \omega = 6.1045 : 5.7946 : 5.3466$	14
15	1-2-4-6-Trinitro-Ethyl-Isopropyl-A.	109°	298	211.80	Triclin. pinac.	a : b : c = 2.0102 : 1 : 1.0000 $\alpha = 75°46' \beta = 92°39' \gamma = 111°16'1''$	---	15
16	1-2-4-Dinitro-Isopropyl-A.	93°	325	153.79	Triclin. pinac.	a : b : c = 1.1527 : 1 : 1.0790. $\alpha = 418°43' \beta = 104°33' \gamma = 85°12'1''$	$\chi : \psi : \omega = 5.3440 : 4.0360 : 7.3201$	16
17	1-2-4-Dinitro-Dipropyl-A.	40°	207	202.50	Rhomb. bipyrr.	a : b : c = 1.0191 : 1 : 0.9240.	$\chi : \psi : \omega = 6.1042 : 5.9890 : 6.5382$	17
18	1-2-4-6-Trinitro-Dipropyl-A.	138°	312	227.25	Triclin. pinac.	a : b : c = 1.3327 : 1 : 0.9035 $\alpha = 419°46' \beta = 111°10' \gamma = 102°33'1''$	$\chi : \psi : \omega = 8.1550 : 6.1107 : 5.5414$	18
19	1-2-4-Dinitro-Isobutyl-A.	80°	239	172.70	Mon. prism.	a : b : c = 0.7106 : 1 : 0.3591; $\beta = 85°34'1''$	$\chi : \psi : \omega = 0.4870 : 8.7092 : 3.2145$	19
20	1-2-4-6-Trinitro-Isobutyl-A.	95°	284	190.53	Rhomb. bipyrr.	a : b : c = 0.7325 : 1 : 0.3470.	$\chi : \psi : \omega = 0.7231 : 9.1782 : 3.4840$	20
21	1-2-4-Dinitro-Piisobutyl-A.	112°	205	250.21	Mon. prism.	a : b : c = 1.0717 : 1 : 0.9121; $\beta = 63°53'1''$	$\chi : \psi : \omega = 7.0086 : 6.8900 : 6.0181$	21
22	1-2-4-Dinitro-Allyl-A.	70°	223	157.93	Triclin. pinac.	a : b : c = 1.0251 : 1 : 0.9032 $\alpha = 71°10'1'' \beta = 111°10' \gamma = 116°40'1''$	$\chi : \psi : \omega = 5.9480 : 5.8024 : 5.5890$	22
23	1-2-4-Dinitro-Methyl-Phenyl-A.	100°	273	194.16	Mon. prism.	a : b : c = 1.1518 : 1 : 1.0068; $\beta = 80°1'1''$	$\chi : \psi : \omega = 5.3389 : 4.6341 : 7.8050$	23
24	1-2-4-Dinitro-Ethyl-Phenyl-A.	95°	287	210.48	Mon. prism.	a : b : c = 0.4933 : 1 : 0.6580; $\beta = 78°6'1''$	$\chi : \psi : \omega = 4.2994 : 8.7156 : 5.7401$	24
25	1-2-4-Dinitro-Benzyl-A.	110°	273	187.50	Triclin. pinac.	a : b : c = 1.0385 : 1 : 0.8586 $\alpha = 107°57' \beta = 139°47' \gamma = 78°23'1''$	$\chi : \psi : \omega = 7.2441 : 6.0757 : 5.9801$	25
26	1-2-4-Dinitro-Methyl-Benzyl-A.	144°	287	204.41	Mon. prism.	a : b : c = 1.5086 : 1 : 1.3270; $\beta = 71°40'1''$	$\chi : \psi : \omega = 7.1735 : 4.7551 : 6.3120$	26
27	1-2-4-Dinitro-Ethyl-Benzyl-A.	73°	301	219.87	Mon. prism.	a : b : c = 1.7258 : 1 : 1.3087; $\beta = 84°5'1''$	$\chi : \psi : \omega = 6.9331 : 4.0081 : 6.0310$	27
28	1-2-4-Dinitro-Phenyl-Benzyl-A.	168°	349	250.00	Mon. prism.	a : b : c = 1.1373 : 1 : 1.3045; $\beta = 64°21'1''$	$\chi : \psi : \omega = 0.4059 : 5.7640 : 7.0850$	28
29	1-2-4-6-Trinitro-Ethyl-Nitraniline.	90°	301	183.00	Mon. prism.	a : b : c = 1.4187 : 1 : 1.0000 $\beta = 80°23'1''$	---	29
30	1-2-4-6-Trinitro-Isopropyl-Nitraniline.	108°	315	201.53	Mon. prism.	a : b : c = 1.3924 : 1 : 0.9368; $\beta = 78°33'1''$	$\chi : \psi : \omega = 7.3076 : 5.2913 : 5.2743$	30
31	1-2-3-4-6-Tetrinitro-Methyl-Nitraniline.	140°	332	189.74	Mon. prism.	a : b : c = 1.6086 : 1 : 1.4712; $\beta = 76°37'1''$	$\chi : \psi : \omega = 7.1730 : 4.2987 : 6.3243$	31

\*) On the isomorphism and the complete miscibility of this compound with p-Nitrosodiethylaniline, see these Proceedings (1935) p. 658.