cates the presence of intergrowths or of accompanying minerals; their nature can be deduced from the magnitude of these supplementary periods. Within the amphibole group, the individual kinds of asbestos can even be differentiated visually on the basis of the number of reflections (2-layer line). If the specimen of asbestos is not in the form of well developed long fiber bundles, it is necessary to prepare Debye-Scherrer powder diagrams, such as the one shown in Fig. 26, for which the fibrous "P 2" chrysotile used in the fiber diagram shown in Fig. 24 was pulverized to make a comparison possible. Through superimposed Debye-Scherrer powder rings, fiber diagrams can indicate the presence of asbestos dust at like identity periods, whereas supplementary periods point to the presence of pulverulent accompanying substances (foreign mineral or rock powders, magnetite, sand, etc.). The width of the reflection can be employed to deduce the degree to which the fibrous structure has developed.

FIG. 26. DEBYE-SCHERRER POWDER DIFFRACTION PATTERN OF URAL CHRYSOTILE (P2)

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6.2 Chemical composition

The chemical composition of the asbestoses is likewise dependent on the asbestos group, and within the amphibole asbestoses on the variety, and among all asbestoses (of the same kind) eventually also on their origins (occurrences). See Fig. 23. A tabulation based on occurrence with a statement regarding the individual tolerances for all members of the entire assembly has but little significance from a practical standpoint and this is why Table 4 gives only a general view, which takes into consideration the differences in the values arising from the various localities from which the specimens came. The analytical data of most importance industrially are always those stating the found values for the proportion of water and content of iron oxides.

TABLE 4

PERCENTAGE COMPOSITION OF ASBESTOS

Variety	SiO_2	MgO	*Iron oxides* Al_2O_3	CaO Na_2O	H_2O [1]
Chrysotiles [2]	35—44	36—44	0—9 [3]	0—2	12—15
Crocidolites	49—57	3—15 [4]	20—40 [5]	2—8	2—4
Amosites	45—56	4—7	31—46 [6]	1—2	1—3
Montasites					
Anthophyllite asbestoses	52—64	25—35	1—10	0—1	1—5
Tremolite- and Actinolite asbestoses	50—63	18—33	2—17	1—10	1—4

[1] The water content should not be equated with the loss on ignition.
[2] Cross- and longitudinal fibers.
[3] The content of magnetite (Fe_3O_4) may be as high as 4%, the content of FeO and Fe_2O_3 may reach 6% each, the ratio FeO/Fe_2O_3 varies between 0.5 and 2.0.
[4] The bright blue crocidolites from Bolivia and China with higher MgO- and lower iron content cannot be regarded as anomalies and hence they were included here.
[5] The proportion of iron (II) is around 60% in crocidolite; about 90% in amosite.

The water content is indicative for the division into chrysotiles (average 14%) and amphibole asbestoses (average 2%). Among the amphibole asbestoses, the blue varieties are recognizable