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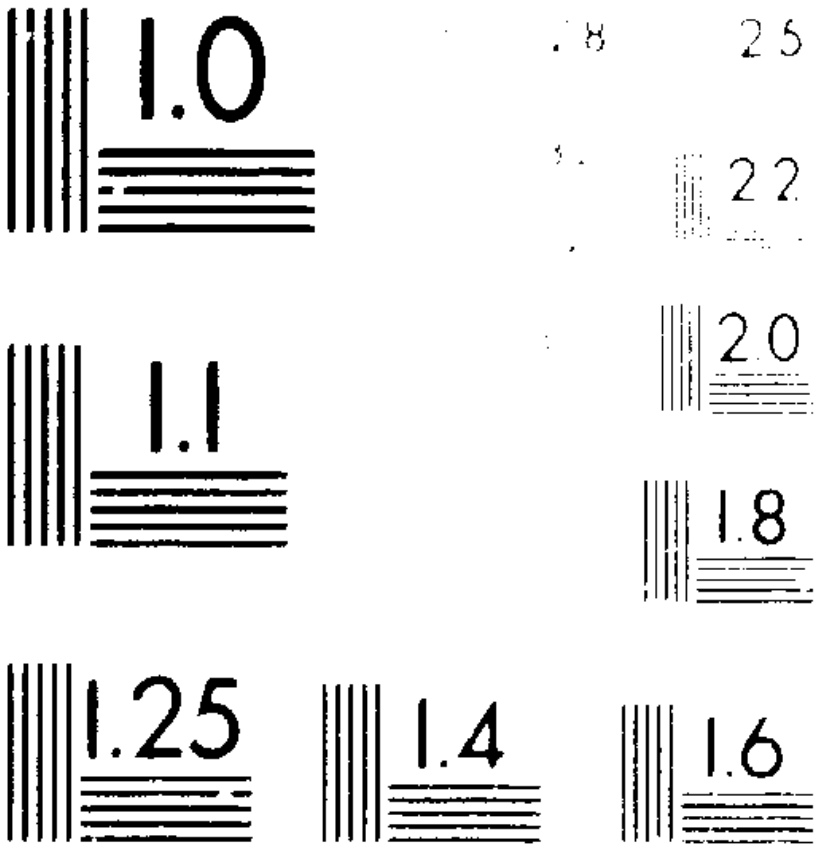
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China. Establishing a literature search service on bauxite and alumina. Final report.
DP/CPR/83/047

(Contract No. 83/100)

1984

ALUTERV·FKI,
HUNGALU ENGINEERING
AND DEVELOPMENT CENTRE

HUNGALU
ALUTERV FKI

F I N A L R E P O R T

Contract No. 83/100

between

THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

and

ALUTERV - FKI

UNIDO Project No.: DP/CPR/ 80/047

This Report comprises this title page, 3 pages of text and two /2/ Appendices / A through B /.

I N T R O D U C T I O N

In the Peoples Republic of China during the period 1965-1976 the communication with other parts of the world, exchange of published materials, supply of foreign books and technical/scientific journals had been rather restricted. The lack of information on the results in research and development abroad might limit seriously the advancement of modernization in China. Making available sources of literature without external assistance requires considerable time and investment.

In order to speed up the process by which the co-workers of the Zheng Zhou Light Metals Research Institute /ZLMRI/ can update their awareness of the technical literature related to their speciality, UNIDO contracted ALUTERV-FKI to supply literature search and photocopying services concerning world-wide publications on specified topics within the field of aluminium industry.

This duty was carried out in close co-operation with the staff of ZLMRI and the results are summarized in the present report.

Budapest, 01.12.1984

Dr.P.Gadó
the Contractors Expert

ESTABLISHING A LITERATURE SEARCH SERVICE ON BAUXITE AND ALUMINA

for the Zheng Zhou Light Metals Research Institute in China

Duration of the services: a total of six man-months distributed along 1984

Requirements of the leaders and staff of the Zheng Zhou Light Metals Research Institute /ZLMRI/ in respect of a literature information service were well known at the start of this project based on previous contacts between the above mentioned institute and the Contractor's personnel / See: Activity Report 1982 on the same project, activity code - 10.22.31.8, contract no.: 80/160 / and from the Terms of Reference attached to the document of the present project.

In accordance with this term of reference computerized literature searches had been carried out in the Metadex and Inspec data bases on:

1/ Alumina production from diasporic bauxite/Bayer & sinter/

2/ Reaction mechanism of formation, conditions of existence and phase analysis of Ti,Ca,Fe,Si and Na containing compounds in the Bayer process and the sintering process

3/ Al-, Fe- and Al/Fe-hydrogarnets

4/ Methods of phase analysis as applied to alumina production

5/ Problems of producing sandy alumina

6/ Determination and separation of layer silicates

Listings resulting from the computerized retrospective literature searches were forwarded to Mr.Liu Ying, the National Unido Project Manager, for consultation with the staff members of ZLMRI and selection for the photocopying

service, if necessary.

A "manu" type list of wanted reprints, xerox copies from out-of-date literature was also included into the terms of reference as given by the ZLMRI.

In response of these orders more than 4000 pages of reproduced and original, respectively, literature was provided to ZLMRI in 1984 as listed in Appendix A. The material was sent by air freight or in some cases handed over personally.

The copies supplied cover most of the requested material, however, regretfully some could not be produced, partly due to unaccessibility, partly due to the incompleteness of references given.

Nevertheless, the representatives of ZLMRI expressed their satisfaction regarding the services provided within this project / Appendix B /. The last shipment contains the six papers specified in the list of wanted publications received from ZLMRI recently / as mentioned in Appendix B./

Recommendation

Similar literature service should be offered to ZLMRI for the next few years because this one proved to be very useful and they still need it very much.

	Title of book	Year	Author	Pages	Figures	Tables	Publisher
1./	Travaux de l'ICSOBA No.13	1976	Ed.: R.Marušić	542	260	100	l'Acad.Yugosl.Sci.Arts Zagreb
2./	Travaux de l'ICSOBA No.14	1978	"	90	28	4	"
3./	Travaux de l'ICSOBA No.15	1979	"	373	182	58	"
4./	Travaux de l'ICSOBA No.16	1981	"	400	183	63	"
5./	Travaux de l'ICSOBA No.17	1982	"	334	116	80	"
6./	Atlas of Thermoanalytical Curves Vol.4.	1974	Ed.: G.Liptay	160	75	-	Akadémiai Kiadó, Bpest
7./	3rd Yugoslavian Aluminium Symposium Vol. I-II	1981		400			Org.Comm.Symp.Aluminija
8./	AIME Light Metals	1982		178			TMS of AIME, USA
9./	PDF Mineral File Workbook	1983	D.K.Smith-G.J.McCarthy	76			JCPDS Int.Centre for Diffraction Data, USA

	Title of book or periodical	Year	Author of article	Title of article	Pages	Number of pages
1./	[illegible]	-	[illegible]	Technical and operational trial of alumina	513-515	3
2./	-	-	[illegible]	A Rapid X-ray Diffraction Method for the Quantitive Determination of Boehmite and Chamosite in Bauxites	351-356	6
3./	Bulletin of the Chemical Society of Japan	1979	-	Solubilities and Rates of Dissolution of Diaspore in Mixed Aqueous Solutions	1201-1206	6
4./	Journal-Central-South Institute of Mining and Metallurgy	1980	Li Longfeng-Zhang Guoxiang	The beneficiation of accumulative diaspore ore-desilication and elimination of the iron content	82-88	7
5./	[illegible] Scientific [illegible]	1975	Kos.V.Miko	Thermometric Rapid Analysis of Bauxites	47-56	10
6./	[illegible]	1981	Tahira, Shuichi, Fukagai, [illegible]	Hydrothermal treatment of tricalcium aluminate mixed with magnesium oxide-with special refference to the formation of hydrogrossular and relevant compounds	108-113	6
7./	Mineral Magazine	1978	Fenna, Ernst Dieter	Synthetic solid solutions between goethite and diaspore	153	1
8./	[illegible] Mineral, [illegible]	1981	R.Bianco, A.Della Giusta and L.Zefiro, Genova	A crystal chemical study of a Ti-containing hydrogarnet	230-236	7
9./	Chung-kuo Kuang Yeh Hsueh Pao Hsueh Pao	1980	Li,Long-Feng, - Zhang, G.X.-	Desilication and elimination of the iron content in beneficiation of accumulative diasporite ores	82-88	7
10./	Mineralogical Journal	1983	Shuichi Hatayamshi and Setsuya Shoji	Infrared analysis of the grossular hydrogrossular series	331-343	13
11./	Jernkontors	1982	Zhang Zhongcheng, Li Shangping	Sintering characteristics of Chinese bauxites	5-10	6
12./	Pinggua Kuangye [illegible]	1981	Yang, Chongyu, Long Yuruchi,...	Preliminary study on the digestibility of Pinggua bauxite	24-30	7
13./	Aluminium Congress, First (Preliminary Bulletin Ltd.)	1981	Dai, C.-Yan-Sung,".-	Utilization of diasporic bauxite for the production of alumina in China	2/1-2/15/	16
14./	-	-	-	Symposium Committee,Technical Session chairmen. Foreword, Introduction	539-787	249
15./	-	1973	M.R.Diwar and U.K. Roy	Microstructural and Mineralogical Changes on Heating Diaspore and Pyrophyelite	49-71	23
16./	J.Indian Chem.Soc.	1981	Abhijit Gupta, J.K. De and B.Dasgupta	Infrared Spectra of Pyrophyllillite and Its Mn-, Cu-, Fe- and Co-Derivates	364-367	4
17./	U.S.Patent	1980	-	Process for the Manufacture of Coarse Aluminium Hydroxide	56-69	14
18./	U.S.Patent	1981	-	Alumina Hydrate Production from Bayer Liquor by Seeding	-	11
19./	Transactions of the Indian Ceramic Society	1971	P.C.Rao, K.V. G.K. Gokhale and S. Palhotra	Thermal Studies on Pyrophyllite Diaspore Minerals	68-71	4

Appendix A/3

	Title of book or periodical	Year	Author of article
30./	[illegible] Cement Concrete Research	1977	Van Vuuit, J.W.G.-Vinken,J
31./	Chemical Engineering in Australia	1982	[illegible].J.Milne
32./	Journal of Metals	1982	Otto Zachmayer
33./	Journal of Metals	1980	Hans Werner Schmidt
34./	[illegible] Metall	1978	Aris Bavrillon
35./	Int.J.Miner.Process	1983	Merelovici,Efraim, Villalba,Manuel, Zagarzazu
36./	Nikuamyan Kuebao	1982	Gao, Chenxin
37./	Chemical Engineering in Australia	1982	Kirke,P.
38./	Chemical engineering	1982	Pritschy, M.G.
39./	J.Solid State Chem.	1979	Sutari,Fumio, Selavi[illegible]otte,P.
40./	Inter Cera.	1979	Hill,R.B.
41./	-	-	John T Sreehan
42./	-	-	Tetsuya Kohno, Shigeyasu Itoh
43./	-	-	P.J.Greenwall and [illegible].J.Milne
44./	-	-	[illegible]erra
45./	Journal of Thermal Analysis	1978	A.Broerse,J.J.de Bruyn, J.H.Bots and [illegible].J.Stol
46./	United States Patent	1983	-
47./	United States Patent	1982	-
48./	-	-	[illegible].Yamada
49./	-	-	[illegible]Ishikawa,T.Hirano and H.Kojima

Title of article	Pages	Number of pages
Formation of Hydrogarnets: Calcium Hydroxide Attack on Clays and Feldspars	39-44	6
The influence of mineralogy on alumina processing	38-42	5
The New Aluminium Process for Producing Coarse Aluminium Hydrate in the Bayer Process	36-39	4
Flexibility of the Fluid-Bed Calciner Process in View of Changing Demands in the Aluminium Market	31-39	9
The merits and demerits of various	519-522	4
Selective destruction and differentiation of clay minerals from natural diaspore admixture by mortar grinding	131-137	7
Calcium hexaluminate in calcined diaspore bauxite	214-221	8
Recent trends in Bayer precipitation practice	35-39	5
Energy and efficiencies in Alumina production	44-48	5
Electron microscopic study of dehydration transformations.II.The formation of "superstructures" on the dehydration of goethite and diaspore	417-427	11
Refractory grade calcined bauxite from China	314-315	2
Improved Particle Size Analysis Method for Precipitation Control	84-91	14
Application of Optimal Control to Lurgi Fluidized Bed Calciner for Sandy Alumina	82-93	12
Hydrothermal Recovery of Soda and Alumina from Red Mud	216-221	12
Treatment of Sandy Alumina Bauxites	206-215	10
Si alkoxosoda Gibbsite and [illegible] treatments	341-345	15
Process for the Production of Coarse Crystalline Aluminium	61-68	5
Process for production of Coarse Crystalline Alumina		
Development of a fluid calciner with suspension preheaters	159-171	13
Conversion of Conventional Rotary Kiln	148-151	10

	Title of Journal or publication	Year	Author of article	Title of article	Pages	Number of pages
[illegible]./	-	-	[illegible]. Fritschy and J.P. Brown	Katalox Experiences with the new aluminate process	111-121	11
[illegible]./	-	-		Collection /15 pcs/		
[illegible]./	[illegible] and Clay Minerals	197[illegible]	L.T. Jackson and F.H. Middel-Luiker	Kaolinite Intercalation Procedure for all sizes and types with x-ray diffraction spacing distinctive from other phyllosilicates	[illegible]-47	2
[illegible]./	-	-	Karoly Solymar and Tibor Perenczi	Le Possibilities for Processing Diasporic Bauxites	3[illegible]-403	16
[illegible]./	-	-	-	[illegible]-Decreasing /001/ IHB/A/ of phyllosilicates and clay minerals, and /001/and /[illegible]/ /002/ of Regular Mixed Layer Minerals	139-146 365-375	16
[illegible]./	-	-	-	The Layer unit operation program	187-199	13
[illegible]./	Journal of the Chemical Society	1974	David A. Jefferson and John M.Thomas	High-resolution Electron-Microscopic Studies of Structural Faults in Layered Silicates	1691-1695	5
[illegible]./	-	-	V.J.Hill and A.J. Robson	The classification of Bauxites from the Bayer Plant Standpoint	14-115 223-249	102 21
[illegible]./	[illegible]. The Minerals	1979	Roderich J.Hill	Crystal Structure Refinement-and Electron Density Distribution in Diaspore	179-199	21
[illegible]./	American Mineralogist	1978	Victor C.Farmer	Infrared spectroscopic evaluation of iron contents and excess calcium in minerals of the dolomite - ankerite series	773-731	3
[illegible]./	Journal of the Chemical Society	1974	John M.Adams	Surface and Intercalate Chemistry of Layered Silicates	2226-2235	3
[illegible]./	Clays and Clay Minerals	1975	D.J.Jefferson, I.J.Tricker and A.J. Winterbottom	Electron-Microscopec and Mössbauer Spectroscopic Studies of Iron-stained Kaolinite Minerals	355-360	6
[illegible]./	Acta Crystallographica	1976	J.M.Adams and D.A. Jefferson	The crystal structure of a dickite: Per a ide Intercalate $Al_2Si_2O_5/OH/_4$		4
[illegible]./	American Mineralogist	1974	G.W.Brindley	Occurrence of dickite in Jamaica - Ordered and disordered varieties	554-562	9
[illegible]./	Zeitschrift für Kristallographie	1963	J.Lippmann [illegible]	Dehydration of boehmite and diaspore	176-203	2
[illegible].	[illegible] und Erzbergbau Clausthal	1963	Hans Beutelspacher und Max Fischer	Einfluss verschiedener Vorbehandlungen auf aufbereitbare Bauxitarte und ihre Eigenschaften	86-98	13

Appendix A/4

I.	Минералогический Сборник /Львов/	I982	Б. М. Кобцев
2.	Труды - Московский Хим.-Технол. Инст.	I980	В.В. Тимашев Л.С. Запорожец
3.	Геохимия	I976	Е.В. Власова
4.		I98I	В.Я. Абрамов А.И. Алексеев
5.		I983	В.В. Андреев
6.	Труды - Инст. Метал. и Обогащения Академии Наук казахской ССР	I967	Л.В. Бунчук
7.	- " -	-"-	- " -
8.	Труды - Инст. геолог. Коми филиала Академии наук СССР	I979	В.В. Беляев
9.	Цветная Металлургия	I979	Л.В. Ткачева

Определение разновидностей триоктаэдрических хлоритов по крывым дта	7	37-43	I
Синтез и исследсвание высококремнеземистого гидрограната состава ...	5	II7-I2I	I
ИК-спектри мусковита из месторождений различного генезиса	8	I8I4-I820	I
Термодинамические величины гидрогранатов кальция состава....	4	998-I00I	I
О термической диссоциации гидрогранатов кальция	3	323-325	I
О синтезе элезистого гидрограната в щелочной среде	6	I8-23	I
Об образовании железистых гидрогранатов в алюминатних растворах	6	24-29	I
Термоаналитический метод количественного определения минералов в бокситах	I3	73-85	I
Поведение соединенй кремния в щелочных растворах	3	24-26	I

I0.	Академия Наук СССР Труды - Мин. Инст. им. А.Е. Ферсмана	I969	И.А. Гаврилов
II.	Доклады Академии наук СССР	I973	С.А, Кашик
I2.	Труды Минералогического музея им. А.Е.Ф.	I97I	А.И. Болдырев
I3.			О.И. Аракелян
I4.	Труды - Инст. Мет. и Обог. Академии Наук Казахской ССР	I970	Л.И.Рыскина
I5.	- " -	I977	Т.В. Соленко
I6.		I98I	А.И. Алексеев
I7.	Цветная Металлургия	I982	В.Л. Раизман
I8.			А.Ф. Еремеев

Окраска диаспора	I		I
Возможный механизм формирования моногидратов окиси алюминия в гипергенных условиях	3	I202-I204	I
Закономерности ИК-спектров поглощения некоторых гидроокислов и оксигидратов	7	33-39	I
Кристаллоптическое определение степени насыщения в гидрогранатах	4	39-42	I
Рентгенографическое исследование соединения....	3	42-44	I
О природе гидрогранатов в продуктах глиноземного производства	6	7I-76	I
Синтез гидрогранатов кальция состава.....	5	I460-I464	I
Термодинамическая оценка влияния гидроксида кальция на	4	40-43	I
Особенности поведения кремнезема при выщелачивании бокситов....	4	65-67	I

Appendix A/5

I9.			Г.Н. Гопиенко
20.			В.М. Сизяков
2I.			В.Н. Лавренчук
22.			В.В. Медведев
23.			П.В. Яшунин
24.	Цветная Металлургия	I980	В.М. Новоженов
25.	Описание изобретения		Ф.Ф. Федяев

Алюминий, глинозем, электроды	4	43-45	I
Кинетика термического разложения гидрогранатов кальция с различным насыщением кремнезеном	4	46-49	I
Новые экспериментальные данные по выщелачиванию диаспор-бемитовых бокситов Урала	6	69-73	I
О применении ступенчатой изотермической выдержки при нагреве бокситовых пульп	6	52-57	I
О природе потерь глинозема и щелочей при выщелачивании диаспоровых бокситов	4	64-67	I
Об образовании кальциевого гидросиликата во время выдержки боксит-известковой пульпи перед выщелачиванием	6	58-63	I
Способ переработки диаспоровых бокситов	2		I

Appendix A/7

26.	Известия Академии Наук СССР	I967	И.П. Лапутина
27.	Геохимия	I972	В.И. Нефедов
28.			В.А. Деревянкин
29.			П.И. Андреев
3о.	Цветная металлургия	I978	Л.П. Ни
3I.	- " -	I977	В.И. Федосеев
32.	- " -	I98I	В.Л. Райзман
33.	- " -	I978	Н.И. Еремин
34.			Весна-Похарц Логар

Эмиссионные рентгеновские спектры алюминия в некоторых минералах	7	912-918	I
Рентгеноэлектронное исследование химической связи в минералах.....	9	II-I9	I
Поведение минералов бокситов при обжиге в кипящем слое	4	295-298	I
Микробиологический метод обескремнивания высококремнистых бокситов	3	I0I-I03	I
Повыщение эффективности операций выщелачивания и обескремнивания при переработке высокооремнистых бокситов	4	60-63	I
Выщелачивание гидраргиллитовых бокситов с повышенным содержанием	5	74-78	I
Исследование фазовых превращений при автоклавном разложении	4	63-66	I
Исследование кинетики разложения каолинита в щелочных и алюминатных растворах	7	42-48	I
Могубност идентификације халојзита у мешавини са каолинитом	7	9I-97	I

Appendix A/

	Title of book or periodical	Year	Author	Title of article	Pages	No.of pages
1./	Travaux de l'ICSOBA	1983	Ed.:R.Marušić	5th Int.Congress of ICSOBA	1-572 /293 Fig. 109 Tab./	572
2./	Nagoya Kogyo Gijutsu Shikensho Hokoku	1977	E.Kato et al.	IR Spectra of Kaolin Minerals in OH Region /II/	365-375	11
3./	"	1980	E.Kato et al.	IR Spectra of Kaolin Minerals in OH Region /III/	184-204	21
4./	Dizhi Kexue	1982	Han Xiuling and Chen Kaihui	IR absorption spectra of minerals of the kaolinite-halloysite series	71- 79	9
5./	Anal.Chim Acta	1963	F.Paulik	Determination of the pyrites content of bauxites by thermal methods	381-394	14
6./	Talanta	19	F.Paulik	Derivatographic determination of the calcite content of bauxites		
7./	Bányászati és Kohászati Lapok	1968	G.Kaptay	Relation between temperature and time for the thermal decomposition of hydrate alumina to g-Al_2O_3	429-436	8
8./	Acta Chim.Acad.Sci.Hung	1970	G.Bárdossy	Possibilities of the joint application of X-ray diffractometer and derivatograph to the quantitative phase analysis of bauxites and similar rockes	267-277	11
9./	Acta Chim.Acad.Sci.Hung.	1970	K.Jónás	Determination of the mineral composition of bauxites by IR spectroscopy	1-11	11
10./	Proc.III.Anal.Chem.Conf. Budapest	1970	K.Solymár	Recent results in derivatograph phase analysis of bauxites and red muds	401-410	10

Appendix B

ZLMRI

CHINA

郑州轻金属研究所

Zheng Zhou Light Metal Research Institute

PROTOCOL

Representatives of ZLMRI (Liu Ying) and ALUTER-FKI (P.Gado)discussed the results achieved under the literature service provided by ALUTERV-FKI to ZLMRI in 1984 under a UNIDO Project (CPR/80/047). ZLMRI requests from ALUTERV-FKI another 6 papers, the list of which was handed over to Dr. P.Gado.

Otherwise it is found that ALUTERV-FKI fulfilled the task expected to accomplish under the above mentional project.

Liu Ying
ZLMRI

P.Gado
ALUTERV-FKI

7 Dec. 1984

Shang-Jie District Zheng-Zhou China

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