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MG 107

GUIDE TO THE

SECOND INTERNATIONAL  
POTASH TECHNOLOGY CONFERENCE  
PAPERS

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## **MG107: INTERNATIONAL POTASH TECHNOLOGY CONFERENCE RECORDS**

**Dates:** 1991

**Extent:** 20. 32 cm of textual records

**Languages:** English and German

**Custodial History:** Donated by James Sadler on behalf of the Potash '83 Distinguished Speaker Fund, Inc., 27 July 1993. Accession 993—60.

**Scope and Content:** This collection contains unpublished papers presented at the Second International Potash Technology Conference, Hamburg, Germany, 26—29 May 1991. The Conference attracted scientists from various countries, including Canada, France, Germany, Brazil, Jordan, Spain, and the USSR.

The Conference was organized into four main sections:

- Geology and Exploration
- Mining
- Processing
- Logistics and Environment

The papers are organized by section, following the format used in the Conference program. Within each section, papers are filed by the date on which they were given, in the order in which they were presented.

Parallel titles for the German papers were provided in the Conference program. Authors names appear in brackets, following titles.

Copies of the papers presented at the First International Potash Technology Conference were published. See Potash Technology: Mining, Processing, Maintenance, Transportation, Occupational Health and Safety, Environment. R.M. McKercher, ed. Ontario: Pergamon Press, 1983, 887 p. [Special Collections: University Authors, TN919.P68].

This conference was held in Saskatoon, 3—5 October 1983.

**Restrictions:** There are no restrictions on this material.

## 1. Conference Program

### **Section 1: GEOLOGY AND EXPLORATION**

#### 2. 27 May 1991

*Mechanism of gases generation in potash beds of the USSR Verkhnekaznsk and Starobin deposits.* (Zemskoff and Smichnik).

*Der Stoffbestand von Losungseinschlüssen als Kriterium für die Entstehung mariner Salzgesteine. Neue Perspektiven in der Evaporitforschung.* = The composition of fluid inclusions as criteria for the development of marine salt rocks. New perspectives in evaporite research. (Borstel and Knipping).

*Directed and Controlled crystallization to seal off brine inflows of gypsum, anhydrite and syngenite.* (Ziegenbalg, Emons, Gaitzsch).

*7 Jahre Laugenentwicklung im gefluteten Kalibergwerk Hope -Geochemische Messungen und rechnerische Modellierung.* = Brine development during 7 years in the flooded potash mine Hope -Geochemical investigations and numerical simulation. (Herbert and Reichelt).

#### 3. 28 May 1991

*The role of backfill in ground control in cut-and-fill potash mining.* (Roulston and Beddoes).

*Geological-mining survey of Suria K S.A. in the Catalanian potash basin.* (Lersundi, Salas, Espina, Tapia)

*Geologische Untersuchungen zur Exploration einer neuen Kaligrube.*  
- *Geological investigations for the exploration of a new potash mine.* (Beer).

*Potash deposit evaluation.* (Banks and Somers).

*Kriterien und konzeptionelle Basis der geologischen Prognose des sicheren Abbaues der Kalisalzlagerstätte an der Oberkama.* = Criteria and conceptual basis for geological forecasting concerning safe operation of Upper Kama potash deposit. (Dzinoridse, Polikarpow, Raewskiy).

*Untersuchungsergebnisse zu ausgewählten Aspekten der Geomechanik und Geophysik im mitteldeutschen Kali- und Steinsalzbergbau.* = Results of geomechanical and geophysical investigations of selected aspects in potash and rock salt mining of Central Germany. (Thoma, Staubert, Lindner).

*Entstehung und Ablauf des Gebirgsschlages bei Volkershausen aus*

*seismologischer Sicht.* = Origin and development of the mine collapse near Volkershausen from a seismological point of view. (Ahorner).

*Ten years of seismic monitoring in Saskatchewan potash mines.*  
(Gendzwill and Prugger).

*Lagerstattenerkundung mit Bohrlochradar.* = Exploration by borehole radar. (Thierbach, Behrens, Eisenburger, Sender).

#### 4. 29 May 1991

*Application of long—term instrumentation and rock mechanics to potash mine designs at Potasas del Llobregat, Ercros, Barcelona, Spain.* (Pardesa and Gonzalez).

*Application of two and three dimensional numerical models for intact salt rock.* (Frayne, Mraz, Rothenburg).

*Was Salz - mid Felsmechanik zum Entwurf mid zur Standsicherheit von Bergwerken leisten.* = The importance of salt and rock mechanics for the design and ground control of mines. (Duddeck).

*Vervollkommung der Parameter der Abbauverfahren mid Technik des Abbaues der Kalifloze in den komplizierten bergbaugeologischen Bedingungen der Starobinsker lagerstätte.* = Improvement of mining methods and the practice of potash seams extraction in complicated Starobin deposit geological condition. (Judin, Smytschnik, Lasurenko, Krajnew, Olovjannyi, Semjonow).

*Geomechanische Grundlagen zur Bestimmung der sicheren Abbaubedingungen von Kaliflozen in der Lagerstätte an der Oberkama.* = Geomechanical basis for the determination of safe mining conditions in the potash beds of the Upper Kama deposit. (Olovjannyi and Krajnew).

*Analyse und Prognose von Verschiebungsprozessen der Tagesoberfläche über Baufeldern des Kalireviers Sudharz.* = Analysis and prognosis of surface dislocation processes above mine panels of the Sudharz potash district. (Fenk and Scheffler).

*Einschätzung der Gefahr der Verformung der Wasserschutzschicht auf den Kali- mid Steinsalzlagerstätten bei den bestehenden natürlichen mid der Bildung der technisch bedingten Klufte.* = The danger of deformation of the impervious cover above potash and rock salt mines with regard to existing joints and developing mining—related cracks. (Nesterow, Spirkow, Spirkowa).

## Section 2: MINING

5. 27 May 1991

*Die technische Entwicklung in den Bergwerksbetrieben der Kali und Salz AG.* = Technical development in the underground operations at Kali und Salz AG. (Kokorsch).

*Recent developments in potash mining and the impact on global supply.* (Karvonen and Kaukinen).

*Mine planning and design integration.* (Gebhardt).

*Advanced mining machine automation in potash.* (Lewis and Fortney).

6. 28 May 1991

*Die Gefahr von Kohlendioxid-Ausbrüchen im hessischen Kalibergbau mit den Möglichkeiten ihrer Beherrschung durch technische und organisatorische Maßnahmen im Betrieb.* = The risk of carbon dioxide outbursts and its management in potash mining of the Werra district. (Bottcher).

*Die Beherrschung von Gas—Salz—Ausbrüchen im Kalibergbau des thüringischen Teils des Werra—Reviere.* = Gas—salt outbursts and its technical management in East—German potash mining. (Salzer).

*Sicherungsmöglichkeiten für betriebene und stillgelegte Schächte.* — Technical alternatives to secure mine shafts. (Gierenz).

*Voraussetzungen und Praxis bei der Einlagerung bestimmter Industrieabfälle in der Untertagedeponie Herfa-Neurode.* — Preconditions and practical operation of underground waste disposal at the Herfa-Neurode mine. (Kind).

*Aspekte der Deponie von Salzlösungen bzw. von industriellen Abfällen und Schadstoffen in Salzgruben.* = Aspects of the storage of brines, industrial wastes and toxic agents in salt mines. (Fulda and Grau).

*Equipment of long life panel at Mines de Potasse d'Alsace.* (Breniaux and Marx).

*Einsatz von schweren Teilschnittmaschinen.* = Drifting by heavy roadheaders. (Hofmeister).

*Compaction behaviour of granular halite backfill.* (Mraz, Fordham, Dusseault, Rothenburg).

*Meeting the challenge of backfilling salt tailings at the DPPC potash mine.* (Ross and Waugh).

7. 29 May 1991

*Planmig eines Schachtes fur die Exploration einer steilstehenden Kalilagerstatte.* = Planning of an exploration shaft for a steep potash deposit. (Hoing).

*Considerations on environmental engineering and mine safety at the underground potash mine of Taquari—Vassouras, Sergipe, Brazil.* (Hennies, Rocha, Eston).

*Gemeinsamer mid selektiver Abbau der Floze in Langstreben in den Kaligruben BeloRu~lands.* = Long wall potash mining in Byelorussia. (Petrowskij, Sorokin, Kalugin, Morew).

*Soltechnische Gewmnnung von Carnallititeine okonomische mid okologische Alternative zum konventionellen Kalibergbau.* = Solution mining of carnallite — an economical and ecological alternative to conventional potash mining. (Gruschow and Saalbach).

*Problems, experience and ways of technology improvement of potash contiguous strata exploitation.* (Kovtun, Sabirov, Yeliseyev).

*Gleislosttechnik mit Verbrennmigsmotoren in Untertagebetrieben des Salzberbaus aus der Sicht der Bergbehörde.* = LDH — operation in potash and salt mining from view point of mining authorities. (Schmalgemeier).

*Untersuchungen in einem Klimaraum zur Beurteilmig der Beanspruchmig hitzeexponierter Bergleute.* = Investigations about the impact of heat stress on mining crew. (Wolperding).

### **Section 3: PROCESSING**

8. 27 May 1991

*Beeinflussmig der Flotierbarkeit von Syvin mid Halit durch gezeilte Oberflachenveranderungen.* = The influence on floating qualities of sylvite and halite by pre-determined crystal surface changes. (Stechemesser and Jung).

*Modellrechnmigen zur Kaliflotation als Ansatzpunkte fur mogliche Proze~rationalisierungen.* = Potash flotation model calculations as a prerequisite for possible process optimizations. (Bilsing and Kleiner)

*The effect of impurities on KCl crystallization.* (Rohani and Ng).

9. 28 May 1991

*Continuous monitoring of potassium levels as an aid to process control in potash refinery.* (Ayling, Delpont, Holyfield).

*Crystallization of potassium sulfate from potassium chloride and glaserite reaction in water.* (Klein).

*Die Entwicklung der Technik zur Produktion von Kalimagnesia miter Anwendung der Berechnungen aus den Loslichkeitsdiagrammen.* = Technical development for the production of potash magnesia by applying calculations from solubility diagrams. (Ermoschkin, Stepanowa, Tschistjakow).

*Herstellung von Kaliumsulfat mit Ausnutzimg der Produktionsabfalle der synthetischen Fettsauren.* = The production of potassium sulfate utilizing by-products of fatty acid manufacture. (Bukscha, Safrygin, Timofeew, Osipowa).

*Technische mid technologische Aspekte der Kaliumsulfatherstellung durch doppelte Umsetzung.* = Technical and technological aspects of potasium sulfate production via metathesis. (Doring and Scherzberg).

*Erfabrungen bei der Mastabsubertragmig in GroBruhrmaschinen.* - Experiences of scale—up in large agitated vessels. (Georgi and Kappel).

*Die Aufbereitmig von Kalirohsalzen im elektrischen Feld.* = Processing of potash raw salts in the electrostatic field. (Fricke).

*Kalitrocknung: Vergangenheit - Gegenwart - Zukunft.* = Potash product drying: Past - Present - Future. (Diekmann).

*Konstruktion von Walzenpressen.* = Design of compactors. (Bergendahl).

10. 29 May 1991

*Compactor operation at Denison—Potacan Potash Mine — an evolution.* (Nylen and Riecken).

*Complex processing of pre—dressed sylvanite ores.* (Grabovenko and Papulov).

*Start—up of a large solar evaporation system for the production of carnallite from Dead Sea brine.* (Stanley and Amarin).

*Maximizing solar evaporation through sequential brine flow and pond area to area ratios.* (Butts).

*Thermal energy integration of potash milling operations.* (Stoneham and Yee).

*The MPD concept: A plant designed for operability, maintainability and constructability to achieve lower capital and operating costs.* (Basset).

## **Section 4: LOGISTICS AND ENVIRONMENT**

11. 27 May 1991

*Environmental protection at potash plants of the USSR.* (Lopushnyak).

*Umweltschutz bei der Kali und Salz AG - gesetzliche Anforderungen und M4nalunen. = Environmental protection at Kali und Salz AG -legal requirements and performances.* (Holland).

*Entsorgung im westdeutschen Kalisalzbergbau der flachen Lagerung.*  
— *Disposal tailings in West German potash mines with flat deposits.* (Schade).

*Die Einlagerung von Abfallen im Salzgestein als bergmannische Aufgabe. = Waste disposal in salt deposits as a mining task.* (Schaar).

12. 28 May 1991

*Tail pile decommissioning options for Saskatchewan potash mines.* (Haug and Reid).

*Zur Umweltvertraglichkeit der Salzhalden. = Environmental impact assessment of salt piles.* (Muhlberg, Liebmann, Schramm).

*Behandlung der fruher aufgehaldeten Salzruckstande der MDPA -Vermeidung der Grundwasserversalzmig. = Management of old potash tails piles at the MDPA - Prevention of saline groundwater pollution.* (Schrieber).

*The influence of clay—brine interactions on the geotechnical properties of clayey soils of western Canada.* (Barbour and Yang).

*Long term stability of potash tails piles on soft foundations.* (Fredlund).

*Laboratory studies of the chemical and physical evolution of potash tailings under brine infiltration.* (Landine, Reeves, Barbour).

*Innovative waste management practices at PCS Inc., Rocanville Division.* (Reid and Maki).

*Untersuchmigsergebnisse mid Vorbereitungsstand zur Anwendung neuer Verfahren der Endlaugenbeseitigmig im Werra-Kaligebiet. -Test results and introduction status of new methods of waste brine disposal in the Werra potash district.* (Rohleder, Tischler, RoBler, Griesbach).

*ErschlieBung eines neuen Versenkhorizontes zur Haldenwasserversenkung. = Exploration of a new horizon for deep well injection.* (Sessler).



13. 29 May 1991

*Reduzierung der HCl-Emission einer Kalisalz-trocknung durch Neutralisationsgewebefilter.*  
= Reductions of HCl—emissions of a potash dryer by neutralisation-tissuefilter.(Knopfel).

*Production of a non—dusting and non—caking potash fertilizers.* (Skvirski, Chistyakov, Koziel).

*Entwicklungsstand der Antiback- mid Antistaubbehandlung in der Mitteldeutschen KALII AG.* = Development status of anti-caking and anti-dust treatment at Mitteldeutsche KALI AG. (Kahle and Leib).

*Wetting and spreading of conditioning reagents on potash products.* (Neumann, Spelt, Stathdee).

*Auswahlkriterien mid Leistungsfahigkeit verschiedener Protokolle fur em neuartiges Funksystem.* = Selection criteria and efficiency of several protocols for a new wireless communication system. (Dumoulin and Molberg).

*Neue Entwicklungen auf dem Gebiet des geschlossenen Materialtransports: Der Pipe conveyor.* = New developments in the area of closed material transport: the pipe conveyor. (Hinkelmann).

*Produktalgerung im Wandel der Zeit.* = Product storage -developments and changes with time. (Wilberg).

14. Posters

Incomplete set.

15. Miscellaneous

Correspondence, and one offprint: “Modern Equipment and Plants for Potash Granulation” (Pietsch).