

**Information on the received KGB Scientific and Technical Intelligence
information for the period June 1985-June 1986, Sofia, 10 June 1986**

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Top Secret!

INFORMATION

Reference: Scientific & Technical information, received from the Directorate for Scientific & Technical Intelligence, KGB for the period 1 June 1985 - 1 June 1986

The Soviet comrades provided us with 411 documents with scientific and technical information over the period. Most of the information was on issues related to the economy and the defense industry of our country. The information helped our specialists to complete a number of tasks, included in the 9 national complex programs.

The information includes the following areas:

I. MILITARY EQUIPEMENT

Over the reported period of time, 15 articles with scientific and technical information were received – 2 of them were rated “useful”, 3 – “interesting information”, and 10 were not assessed.

Some important materials, interesting and useful for our customers, are:

**1. TECHNICAL DESCRIPTION OF A DEVICE FOR THE NEUTRALIZATION
OF THE EXPLOSIVE MECHANISM OF UNEXPLODED ORDNANCE**

The document contains description of the device and how to neutralize unexploded ordnance, a table to determine ammunition and their range of activity.

This document is used by the Technological Research Institute – Kazanlak to improve their methodology.

**2. TECHNOLOGICAL DESCRIPTION OF A DEVICE FOR THE
NEUTRALIZATION OF UNEXPLODED BOMBS**

The document includes the structure, the method of work and how to decode signals.

This document is used by the Technological Research Institute – Kazanlak to improve their methodology.

II. ELECTRONICS

As part of the information exchange between the Directorate for Scientific & Technical Intelligence, KGB and the Directorate for Scientific & Technical Intelligence, PGU-DS, 135 documents related to electronics were received. Out of them, 1 was rated “extremely valuable”, 1 – “valuable”, 43 – “useful”, 7 – “interesting information”, and 84 were not assessed.

The following documents were highly rated:

1. TECHNOLOGY OF 1,25 MICROMETER COMPLEMENTARY SMOS INTEGRATED CIRCUIT (IC)

The document contains technological data and the requirements for materials and equipment for the production of this type of integrated circuit.

This information is being used by specialists in the Mechanical and Electro-technical Institute in Sofia to develop NSMOS and NMOS-II IC, which considerably shortens the time of the development-implementation process.

The specialists need a lot of supplementary technological information.

2. DESIGNING A PRODUCTION LINE FOR 2-MICROMETER MOS CIRCUITS FOR DEVICES, BASED ON THE PRINCIPLE OF SUPER-HIGH LEVEL OF INTEGRATION

The document contains technological data about the processes: chemical gas precipitation, ion implantation, metalling, photolithography, etc.

The material is used by specialists in the Mechanical and Electro-technical Institute to enhance their technology and the design of a new line for MOS Integrated circuit production.

3. MATERIALS FROM INTERNATIONAL CONFERENCES – 9 DOCUMENTS

The materials contain information about the development of super large integral circuits, nanometre structures in microelectronics, thin layers of vacuum equipment, designing and implementing IC with super-high level of integration, semiconductor components, etc.

4. RESEARCH AND LABORATORY REPORTS – 15 DOCUMENTS

The documents contain information on the application of the method for removal of the material from the padding by burning in a 1-micrometer technology, research on the properties of metallized bands in MOS structures, reduction of conductor compounds, making samples for X-ray lithography and the development of technologies for production of IC with high voltage up to 35 V.

5. MATERIALS ABOUT OPTOELECTRONICS – 4 DOCUMENTS

We have received from the Soviet comrades a number of documents related to the area of microelectronics, which help to understand the advances and trends of development in this field. The data in some of the documents was very useful since it provided prognoses for the future.

III. ELECTRONIC-COMPUTING ENGINEERING

Based on bilateral relations, the Soviet comrades have sent us 141 scientific and technical documents in the area of electronic-computing engineering. Out of them, 6 have been rated “valuable”, 49 – “useful”, 25 – “interesting information”, 6 – “not valuable”, and 55 have no grade.

The materials fall in three important fields within the electronic-computing engineering: micro, mini and large electronic-computing machines from the series RIAD-2 and RIAD-3.

Some materials received high rates:

1. DOCUMENTARY INFORMATION, SOFTWARE AND HARDWARE FOR HIGHLY PRODUCTIVE PROCESSOR “MAGNUSON 80/43”

Based on the materials provided, we have designed processor IZOT 1014 E, a prototype of IBM 4341 processor.

This processor, designed in Bulgaria, is the fastest among all processors in the member-countries of the Council for Economic Mutual Assistance.

2. HSC 5D – DOCUMENTATION FOR THE USER

This material provides technical description of the operational procedures – doubling, formatting, diagnostics, etc.

This information is being used by experts in the Central Institute for Computing Engineering - Sofia to develop the topic “Work of a system with collective access” and it will help to considerably reduce the time for development.

3. ANALYTICAL REVIEW OF MICROPROCESSOR MC 68000 TESTING METHOD

The experts from the Central Institute for Computing Engineering - Sofia received materials on tests of Microprocessor MC 68000 with descriptions,

guidelines and analysis of what has been done in this field. This information helped them to work on the topic “Diagnostics of microcomputers”, to design diagnostic tests and guidelines for work with them.

4. DOCUMENTATION FOR DISC DEVICES TESTERS

The materials were sent to the developers of quick periphery in the Central Institute for Computing Engineering -Sofia. These documents and diagrams helped the development of devices for testing parts of disc tracts in the institute.

5. DOCUMENTATION FOR THE FIELD SERVICE UPDATA TAPE 17 PROGRAM

The experts from the Central Institute for Computing Engineering -Sofia received documentation on software for big computers, including guidelines, description and instructions. These materials helped them to develop software for machines of the series RIAD-2, and to reduce the time for development.

6. DEVELOPMENT OF PROGRAMS FOR DISTRIBUTED COMPUTING NETWORKS

This material includes reviews and lectures on distributing systems. It is being used by the experts in the Institute for mathematics at the Bulgarian Academy of Sciences to work on the topic “Distributed operational environment for local networks”. The information helps to reduce the time for development of this task from the State Plan.

7. DOCUMENTATION AND PROGRAMS FOR “BERKELY” UNIX V.4.2 FOR VAX-11

This material contains information, documents and the operational system UNIX version 4.2 for VAX-11. The material is being used by the Central Scientific Institute for Complex Automation - Sofia, which facilitates the design and applied work of the experts from the Institute.

We have received from the Soviet comrades 17 “useful” materials related to systems for automation of designing and research experiments:

- Description of CAD systems “CASE S-G” and “COMETS”
- Documentation on spectrum analysts – different models
- Documentation on transformers and generators for signals
- Documentation on the application of oscillographs series 7103, 7300, 7000 and amplifiers
- Materials from conferences related to text processing systems.

Many of the materials in the area of hardware for large computers /documentary information/ and technical and program elements for external memory devices were rated “useful”.

The materials are topically related to:

- a catalogue with publications from IBM and materials from seminars on program procurement
- materials for components of computers of leading US companies
- maintenance documentation for video cassette player and UR-7600 MC
- technical documentation for disc device type SA410/460
- trends for development of disc memory devices
- documentation for disc device controller.

Other materials in the field of minicomputer software dealing with diagnostic programs for VAX-11, documentation for EUCLID language, exploitation instruction for TRS program, etc. were also rated "useful".

IV. CHEMICAL INDUSTRY

During the period 1 June 1985 – 1 June 1986, we received from the USSR 69 scientific and technical documents related to "Chemical industry". Out of them, 6 were rated "valuable", 13 – "useful", 9 – "interesting information", 2 – "not valuable" and 39 – without any grade.

The following materials were highly rated:

1. TECHNOLOGICAL DOCUMENTATION FOR SCREW CONVEYOR PRESSES FOR PROCESSING OF POLYAMIDES, POLYETHYLENE, POLYVINYL CHLORIDE

This material will find its application to improve the technology in the area of extruders. The Designing Research Institute for Presses and Energy Machines in Pleven is the developer.

2. PRODUCTION PROCESS AND CONTENT OF CATALYSTS FOR METHANIZATION

This material contains information about the content of catalysts for methanization, the method of its production, and the results of methanization of carbon oxide in a mixture of methane and hydrogen during ethylene production. This will improve the technology in the Chemical Plant in Vratza.

3. FORMULAE FOR ETHYLENE-PROPYLENE RUBBER "DUTRAL" AND A DESCRIPTION OF ITS PROPERTIES AND APPLICATION

The two materials contain formulae for mixtures based on ethylene-propylene rubber for different purposes. They also contain physical and mechanical characteristics, results from heat aging, the impact of different fillers, plastificators and vulcanizing agents on the properties of vulcanizers, as well as recommendations how to prepare the mixtures. They will be used for the development of a new product in the University of Chemical Technology in Sofia.

4. INDUSTRIAL REGULATION FOR THE PRODUCTION OF INSECTICIDE FENVALERAT

This information contains a technological description for the production of petroid substance fenvalerat (sumecidin), which has longer residual action than cipermetrine.

The material will provide the technological regime and the formulae to create a new product.

5. DESCRIPTION OF THE PILOT INSTALLATION AND SYNTHESIS OF INSECTICIDE CYPERMETHRINE AND SEMI-PRODUCT FOR ITS PRODUCTION

This material contains full description of the technological process for production of peritroid – cypermethrine – a substance with extremely low toxicity. This material will provide the formula and the technological regime of synthesis to create a new product.

V. ENERGY

During the period 1 June 1985 – 1 June 1986, we received from the USSR 17 scientific and technical documents related to “Energy”. Out of them, 3 were rated “valuable”, 7 – “interesting information”, and 7 – without any grade.

The following materials were rated “useful” by our customers:

1. REQUIREMENTS FOR MATERIALS USED FOR THE PRODUCTION OF PROTECTIVE STEEL COVER OF NUCLEAR REACTORS

This material is a standard of the Ministry of justice in the FRG and regulates the requirements for steel used for protective cover of reactors, their processing and testing, as a proof of their qualities to the control authorities.

This material helped the studies in the Institute for Nuclear Research and Nuclear Energy – Bulgarian Academy of Sciences, related to security of nuclear power stations.

We are also interested in other materials and research papers dealing with measuring and monitoring the strength of steel and reactors under conditions of pressure and high temperature.

2. PROGRAM FOR THE EVALUATION OF CAUSES OF SIGNIFICANT FAILURES IN NUCLEAR POWER STATIONS

This material presents systematic information on failures of nuclear energy blocks. This information was drawn from 87 reports on failures in nuclear stations.

This material helped the analysis of emergency regimes of VVER-440 nuclear reactors in the Institute for Nuclear Research and Nuclear Energy and ENERGOPROECT Company.

3. SEMINAR ON BURNING RADIOACTIVE WASTE IN HOLLAND

This material presents reports on burning flammable radioactive waste. It also includes a description of burning installations.

This material was used in research papers on radioactive waste processing by ENERGOPROECT Company.

VI. METALLURGY AND MACHINE BUILDING

During the period 1 June 1985 – 1 June 1986, we received from the USSR 10 scientific and technical documents related to “Metallurgy and Machine building”. Out of them, 3 were rated “valuable”, 4 – “interesting information”, and 3 – without any grade.

The materials rated “useful” are:

1. TECHNICAL TESTING OF MATERIALS BY MEANS OF HOLOGRAPHY

The radiographic method and its application in defectoscopy were studied. The material deals with sources of X-rays, their principle of work and characteristics. There are materials about X-ray photographs and a description of their processing.

This material will help the developments in the area of non-destructive control of products and materials in the Central Laboratory for Optic Records and Data Processing.

2. TECHNOLOGIES FOR PROCESSING OF MATERIALS FOR COMBUSTIBLE ELEMENTS FOR TRANSPORTATION VEHICLES

This material focuses on the status of different systems of combustible elements. The focus is on the problems that will have to be solved in order to achieve wider application of combustible elements for movement of transportation vehicles (automobiles, buses, trucks).

This material is a report of the national research council of the US Academy of Sciences. It will facilitate the research work in the Central Laboratory for Electro-Chemistry, Bulgarian Academy of Sciences, in this area.

3. TECHNICAL GUIDANCE FROM “FANUK” COMPANY FOR THE PROGRAMMABLE MANAGEMENT BLOCK MODEL “G” AND THE LEADIN ENGINE OF MOUNTED SPINDLE

This material helped the factories for metal-cutting machines in their developments of new designs of metal cutting machines' computer integrated manufacturing (CIM).

During the period 1 June 1985 – 1 June 1986, we received 12 scientific and technical documents related to "Fundamental sciences, Economy, Agriculture and Food Industry".

These materials were rated "useful" by customers:

1. STRATEGIC MARKETING PLAN OF THE US ITT COMPANY FOR 1986-1990

This material contains a description of the trade relations between "ITT" Company and the socialist countries in Europe. It gives directions for work between the company and the respective countries in the future, accompanied by diagrams.

This material is being used by TELECOM.

2. DEVELOPMENT OF RESEARCH IN THE AREA OF BIOTECHNOLOGY, INDUSTRIAL ROBOTS AND ENERGY IN THE USA, JAPAN AND OTHER WESTERN COUNTRIES

This material contains information about market trends, capital investments and directions of research in the field of biotechnology, robotics and energy in the USA, Japan and other western countries.

This information is being used in the Institute for international relations and socialist integration to develop the topic "Bulgaria in the international economic cooperation East-West".

3. RESULTS FROM TOXICOLOGICAL TESTS OF PESTICIDE ALACHLOR

The material provides detailed information about the toxicological impact of the pesticide on warm-blood organisms.

This information helped the experts from the Central station for plant protection in the town of Kostinbrod to study how people working with ALACHLOR can stay healthy.

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