The Communist Supply Position For Chemical Analysis Equipment

(Categories CCL 72952 and CCL 86198)

I. Position of Country Group Y (USSR, and Eastern Europe, excluding Poland and Rumania).

A. Production

The USSR and East Germany are the only countries in "Group Y" which produce sizeable quantities of chemical analysis equipment. Czechoslovakia and Hungary produce token quantities of such equipment. In general, the output of CCL 72952 and 86198 instruments is not believed to be quantitatively or qualitatively adequate for the present, and rapidly expanding needs of the Group Y countries.

Although the USSR is probably in a better position than the other countries in Group Y, it has reported production shortages of chromatographs, automatic titrators, magnetic gas analyzers, optical-acoustical gas analyzers, and related instruments. East Germany and Hungary also have complained in recent years about the inadequate output of chromatographs and other chemical analysis equipment. Furthermore, evidence indicates that the quality of certain types of analytical equipment produced by the USSR and East Germany does not measure up to standards. (For a partial listing of analytical equipment produced in the USSR, see attachment 1.)

B. Trade

Although the USSR, East Germany, and Czechoslovakia have exported chemical analysis equipment (principally to other Communist countries), these countries do not have a net export capability. The need to import from the Free World is expected to continue for some time because of the rapid expansion

scheduled for the chemical and petrochemical industries and because of the increasing role of automation.

The USSR, East Germany, and Czechoslovakia have attempted to procure chemical analysis equipment from the US on several occasions in recent years. The types of US equipment sought by these countries include the following:

a. Process gas chromatographs (series D analyzer and Model 320 programmer)
b. Continuous oxygen analyzers
c. Infrared analyzers
d. Ph indicator, model LN 7678

In addition to direct efforts to procure these items from the U.S., the USSR, on at least one occasion (in the early 1960's), received a U.S. chromatograph originally ordered by a Western European firm. It is also possible that some U.S. analytical equipment has been incorporated in chemical plants which Free World firms have supplied to the countries in Group Y.

The countries in Group Y also have purchased chemical analysis equipment produced by Western European countries and Japan. The current trade agreement with Japan calls for the annual value of Soviet imports of measuring and other instruments to double during the 1966-70 period.

II. Position of Country Group W (Poland and Rumania)

A. Production

Rumania is not known to have a capability for production of chemical analysis equipment while Poland's capability for such production is limited. In 1966, Poland claimed to have developed a chromatograph for measuring the gas content of metals, but it is doubtful that such types of sophisticated analytical equipment are mass produced.

B. Trade

Both Poland and Rumania are heavily dependent upon other countries for advanced types of analysis equipment for their chemical industries.

Although some imports can be made from the USSR and East Germany, there is no doubt that Rumania and Poland would prefer to purchase from the US and other Free World countries who are experienced in the production of chemical analysis equipment. Poland has attempted to obtain oxygen analysis equipment from a US firm (Beckman Instruments, Fullerton, Calif.). We have no firm evidence that efforts have been made to divert US-produced chemical analysis equipment from Western European countries to either Poland or Rumania, but some US items may have been incorporated in plants sold to these Communist countries.

III. Country Group Z (Communist China and Cuba)

A. Production

China has a small, yet growing, capability for production of sophisticated analytical equipment used in the chemical industry. Demands for such equipment, however, are likely to remain well in excess of production for some time as China pushes forward with its program of chemical expansion and modernization.

Cuba, on the other hand, lacks the capability to produce chemical analysis equipment for modern industry.

B. Trade

China relies heavily on Western Europe and Japan for the specialized types of analytical equipment needed for its chemical process industry. In 1963, China's purchases of gas chromatography equipment from one UK firm alone amounted to about $73,000. The purchase of precision instruments of all types (including chemical analysis equipment) from Japan has grown sharply from $.9 million in 1963 to $2.7 million in 1964, and to $6.3 million in 1965. In addition, China probably has received various types of sophisticated analytical equipment in conjunction with chemical plants purchased from the Free World. There is no evidence that sales to China by Japan or Western

Europe have included chemical analysis equipment manufactured by US firms. The Chinese, however, are fully aware of technological advances which have been made in the U.S. and elsewhere in developing modern devices for chemical analysis and they undoubtedly will attempt to purchase US, or equivalent, equipment. The types of chemical analysis equipment which China is interested in acquiring include:

a) Continuous viscometers
b) Kinetic vapour pressure analyzers
c) Infrared spectrophotmeters
d) Flame photometers
e) Large quartz spectrographs
f) Optical pyrometers
g) Microptic polarimeter
h) Photoelectric spectrophotometers
i) Ultrasonoscopes
j) Farinographs and extensographs
k) Pressure viscometers
l) Ultraviolet and visible spectrophotometers

Cuba has relied to some extent on the USSR for chemical analysis equipment. The Varu Gas Analyzer Plant in the USSR claims to have supplied many instruments for the Cuban chemical industry. Cuba's shortage of adequate analytical equipment has been evident in the past and is presumed to exist at present. On at least one occasion, there is evidence that the start-up of an important Cuban chemical plant was delayed by the shortage of automation equipment. Because much of the Cuban chemical industry was built by US firms, it seems likely that the Cubans would attempt to obtain US analytical equipment for use in the various plants. It is presumed, therefore, that some US analysis equipment has been supplied to Cuba through indirect channels. The UK currently is negotiating the sale to Cuba of a large fertilizer plant which undoubtedly will incorporate advanced equipment for chemical analysis.

ATTACHMENT 1

Selected Items of Chemical Analysis Equipment Produced in the USSR

ITEM	USE
Gas analyzer GDRP-1	To determine concentration of oxygen in combustible and inert gases and in different gas mixtures.
Gas analyzer GIP-7 (Registering and recording type, infrared absorption)	To determine the content of carbon monoxide, carbon dioxide, ammonia, and methane for preparing synthetic ammonia, and carbon monoxide in the air.
Gas analyzer TKG-4 (Thermoconductometer)	To determine the content of hydrogen, ammonia, sulfur dioxide and argon for the production of hydrogen chloride, carbide, ammonia, and sulfuric acid.
Gas analyzer DPG-5A-52 (depolarizing)	To determine the content of hydrogen in combustible and inert gases and their mixtures.
Gas analyzer PGF 2M-IZG:	To determine the content of coke gases (0.2-4%) and of benzine vapors (2.5-80 mg/l).
Gas analyzer PGF 2M-I4A:	To determine the content of hydrogen (0.1 - 3.8%).
Gas analyzer PGF 2M-IlA:	To determine the content of methane (0.4 -4.5%).
Gas analyzer TP-1116 (automatic registering type)	To determine the content of hydrogen in gas environments within limits of 0 - 6%.
Magnetic gas analyzer type MGK-2M:	To determine the oxygen content of various gaseous mixtures.
Magnetic gas analyzer type MGK-6:	To determine the oxygen content in various gaseous mixtures.
Thermochemical gas analyzer:	To determine the content of oxygen and hydrogen during the electrolysis and generation of water gas.
Magnetic gas analyzer :	To determine the content of oxygen in mixtures with unsaturated hydrocarbons.
Chromatograph Kh PA-4:	Continuous control of the composition of gas flows directly in technical installations.

Chromatographic gas analyzer RKh-1:	Analyzes complex mixtures of hydrocarbon gases that include components from methane to the butane group.
Universal chromatograph UKh-1:	Analysis of organic liquids and gases with temperatures of up to plus 300 degrees.
Optical-acoustic gas analyzers OA2209, OA2109, OA2309:	To determine concentration of reacting substances based on the principle of selective absorption of infrared radiation.