

# CONSPECTUS

**Grounds**      Takatsuki : 5.722 acres  
                   Kyoto :      0.395 acres

## **Buildings**

|                                                                                   |             |                 |
|-----------------------------------------------------------------------------------|-------------|-----------------|
|                                                                                   |             | (in floor area) |
| Main Building                                                                     | (Takatsuki) | 0.757 acres     |
| Laboratories & Pilot Plants                                                       | (   „   )   | 0.513 „         |
| Office Rooms & Lecture Hall                                                       | (   „   )   | 0.086 „         |
| Quarters for the Personnel                                                        | (   „   )   | 0.033 „         |
| Power Distribution Place,<br>Boiler Room, Storages, &<br>other attached buildings | (   „   )   | 0.154 „         |
| Kodama Laboratory & Pilot Plant                                                   | ( Kyoto )   | 0.411 „         |

## **Number of Personnel**

| Position             | Full-time  | Concurrent |
|----------------------|------------|------------|
| Professor            | 6          | 33         |
| Asst. Prof.          | 12         | 1          |
| Instructor           | 7          | 4          |
| Assistant            | 47         | 0          |
| Business Official    | 6          | 0          |
| Charged Researcher   | 0          | 5          |
| Part-time Researcher | 0          | 4          |
| Employee             | 37         | 0          |
| Laborer              | 19         | 0          |
| <b>Total</b>         | <b>134</b> | <b>47</b>  |

Visiting Researcher: 1  
 Authorized Researchers: 85  
 Authorized Experiment Probationers: 18

## **Laboratories**

Kondo Laboratory ..... *Nutritional Chemistry and Food Chemistry*  
 Nozu Laboratory..... *Preparative Organic Chemistry*  
 Sawai Laboratory ..... *Ceramic Chemistry*  
 Takei Laboratory ..... *Natural and Synthetic Insecticides*  
 Ogiu Laboratory..... *Pharmacological Chemistry*  
 R. Kimura Laboratory ..... *Applied Microbiology and Immunology*  
 Utzino Laboratory ..... *Applied Medical Biochemistry*  
 Katagiri Laboratory ..... *Special Fermentation*  
 K. Inouye Laboratory ..... *Nutritional Medicine*  
 Sawamura Laboratory ..... *Metallurgy*  
 Sakurada Laboratory..... *Synthetic Fibers and Chemistry of High Polymers*

|                             |                                                   |
|-----------------------------|---------------------------------------------------|
| Kodama Laboratory .....     | <i>Fuel Chemistry and High Pressure Chemistry</i> |
| Oda Laboratory .....        | <i>Organic Syntheses</i>                          |
| Sasaki Laboratory .....     | <i>Surface Chemistry</i>                          |
| Ishibashi Laboratory.....   | <i>Oceano-Chemistry</i>                           |
| Takagi Laboratory.....      | <i>Pharmaceutical Analysis</i>                    |
| Kariyone Laboratory.....    | <i>Phyto-Chemistry</i>                            |
| Horio Laboratory .....      | <i>Applied Cellulose Chemistry</i>                |
| Y. Inouye Laboratory .....  | <i>Agricultural Biochemistry</i>                  |
| Tachi Laboratory .....      | <i>Interfacial Chemistry</i>                      |
| Yukawa Laboratory .....     | <i>Quantum Chemistry</i>                          |
| Abe Laboratory .....        | <i>Electrical Engineering Materials</i>           |
| Sihshido Laboratory .....   | <i>Industrial Organic Chemistry</i>               |
| Goto Laboratory .....       | <i>Colloid Chemistry</i>                          |
| K. Kimura Laboratory .....  | <i>Applied Nuclear Physics</i>                    |
| Utzino 2nd Laboratory ..... | <i>Metal Physics</i>                              |

### A Short History of the Institute for Chemical Research

In August, 1915 the Special Chemical Laboratory was established at Yoshida Nihonmatsu-cho, Sakyo Ward, Kyoto, as a part of the Faculty of Science of Kyoto University, then Kyoto Imperial University. The laboratory was put under the directorship of Prof. Mitsuru Kuhara, and engaged in the study and manufacture of chemicals, e. g., "salvarsan", which were desperately needed for medical treatment but in shortage due to the interruption of importation as the result of World War I. With the death of Prof. Kuhara in November, 1919, Prof. Yukichi Osaka was appointed supervisor of the laboratory, and with Prof. Osaka's resignation in 1920 Asst. Prof. Kaoru Matsumiya succeeded him as supervisor. In 1926 a budget bill providing for the enlargement of the laboratory was passed by 51st Diet.

Upon the request of Kyoto (Imperial) University which had been asking for the establishment of a research institute of chemistry on a large scale, the Government consented to set up the present institute by promulgating in October, 1926, Imperial Ordinance No. 313, which provided for the establishment of a new institute for chemical research in Kyoto (Imperial) University. The new institute amalgamated the Special Chemical Laboratory, and has continued to grow up to the present. In addition to the study and manufacture of various chemicals taken up by the Special Chemical Laboratory the new institute started researches in theories and application of special matters of chemistry. In the following table will be seen the development of the institute:

#### 1926

- Oct. 4: In accordance with an Imperial Ordinance, the official organization of the Institute for Chemical Research was promulgated, and Prof. Masumi Chikashige of Kyoto (Imperial) University was appointed Acting Director of the Institute.
- Oct. 5: The office was set up in the campus of Kyoto (Imperial) University. The Special Chemical Laboratory of the Faculty of Science, was transferred to become the Matsumiya Laboratory of the Institute for Chemical Research.

**1927**

Mar. 4: Prof. Masumi Chikashige of Kyoto (Imperial) University, Acting Director of the Institute was appointed Director.

Apr. 1: The following eight laboratories were established:

|                           |                   |
|---------------------------|-------------------|
| Chikashige Laboratory     | Horiba Laboratory |
| Kita                    " | Watanabe   "      |
| Osugi                  "  | Kondo       "     |
| Mayeda                "   | Shikata     "     |

Oct. 26: The ground of 3.676 acres was purchased at Aza-Kosobe, Iwate-mura, Mishima-gun, Osaka Prefecture.

Oct. 31: The Osugi Laboratory being abolished, and the Suzuki Laboratory was established.

**1928**

Mar. 30: Construction works of the main building for the laboratories were started at Aza-Kosobe, Iwate-mura, Mishima-gun, Osaka Prefecture.

**1929**

Mar. 31: Construction of the main building for the laboratories was completed.

May 15: To the completed main building moved the Chikashige, Mayeda, Horiba, Kondo, Shikata Laboratories and a part of the Matsumiya Laboratory.

Dec. 17: With the revision of Articles 6 and of the Official Organization Law in accordance with the Imperial Ordinance No. 353, the number of the personnel was increased by 4 assistants and 1 clerk.

**1930**

Apr. 1: To the main building moved the Kita, Watanabe Laboratories, and a part of the Suzuki Laboratory.

May 15: The opening ceremony was held at the Institute at Iwatemura, Mishima-gun, Osaka Prefecture.

Sept. 25: Prof. Masumi Chikashige of the Kyoto (Imperial) University was relieved of the post of Director at his own request.

Prof. Gen-itsu Kita of the Kyoto (Imperial) University was appointed Director of the Institute.

Oct. 27: With the resignation of Prof. Chikashige at his retiring age, his laboratory was abolished.

Oct. 28: Uno Laboratory was established.

**1931**

Jan. 1: Due to the administrative change the address of the Institute was changed from Aza-Kosobe, Iwate-mura, Mishima-gun, Osaka Prefecture to Aza-Kosobe, Takatsuki-cho, Mishima-gun, Osaka Prefecture.

June 30: A test plant was completed.

**1932**

June 17: Director Kita left for a trip to Europe.

Member Shinkichi Horiba was nominated Acting Director.

A building for fiber laboratories was donated.

June 30: With the death of Prof. Matsumiya, the Matsumiya Laboratory was abolished, and Utzino Laboratory was set up.

Nov. 22: The construction of a workroom was started.

Dec. 29: Director Kita returned.

### 1933

Mar. 25: The construction of the work room was completed.

July 7: With the revision of 6 & 7 of the Official Organization Law in accordance with the Imperial Ordinance No. 185, the number of personnel was increased by 7 assistants and 2 clerks.

Aug. 30: The ground of 1.492 acres was leased for the site of the prospected pilot plants.

Oct. 26: The construction of a test plant for colloidal chemicals was completed.

Dec. 15: The construction of a test plant for nutritive chemistry was completed.

Dec. 27: The Matsumoto Laboratory was established.

### 1934

July 3: Due to the revision of Art. 6 of the Official Organization Law in accordance with the Imperial Ordinance No. 215, the number of personnel was increased by 2 assistants.

Aug. 15: The construction of a laboratory for special glass was started.

### 1935

Mar. 15: The construction of the laboratory for special glass was completed.

June 11: The construction of a laboratory for fiber was started.

Aug. 8: The construction of the same laboratory was completed.

### 1936

Jan. 29: The construction of a laboratory for electric chemistry was started.

Feb. 18: The construction of a power substation was started.

Mar. 17: The construction of the laboratory for electric chemistry was completed.

Mar. 31: The construction of the power substation was completed.

June 11: The Suzuki Laboratory was abolished.

July 18: The construction of a test plant for tundra and the official buildings was started at Shiika-cho, Saghalien.

Oct. 15: The above-mentioned construction was completed.

### 1937

Feb. 16: Prince and Princess Chichibu visited for inspection the Takatsuki Institute.

Apr. 2: The Nozu, Sawai, and Takei Laboratories were established.

June 23: The extension of the laboratory for fiber was started.

July 17: The construction of a test plant for synthetic oil was started.

Sept. 30: The extension of the laboratory for fiber was completed.

Oct. 15: With the resignation of Prof. Watanabe at his retiring age, the Watanabe Laboratory was abolished, and the Nishimura Laboratory was established.

Nov. 13: The construction of a test plant for synthetic oil was completed.

Dec. 24: In accordance with the Imperial Ordinance No. 735, "Assistants shall be full-time 16 persons" was revised to "— full-time 21 persons" in Art. 6 of the Official Organization Law.

"Clerks shall be full-time 4 persons" was revised to "— full-time 5 persons".

#### 1938

Sept. 9: The construction of a room for the manufacture and study of Saviol was started.

#### 1939

Mar. 31: The construction of a room for the manufacture and study of Saviol was completed.

Apr. 6: The Arakatsu Laboratory was established.

Aug. 1: In accordance with the Imperial Ordinance No. 523, "Assistants shall be full-time 21 persons" was revised to "— full-time 19 persons" in Art. 6 of the Official Organization Law, and next to "and the asst. professors who — shall be" will be added "7 persons in all" in paragraph 2, Art. 8.

Aug. 23: The construction of a test plant for glass fiber and a test plant for synthetic rubber was started.

Oct. 7: The Ogiu and Kimura Laboratories were established.

Dec. 22: In accordance with the Imperial Ordinance No. 848, "Assistants shall be full-time 19 persons" was revised to "— full-time 23 persons" in Art. 6; and "7 persons in all" to "9 persons in all" in Art. 8.

#### 1940

Jan. 19: The construction of a test plant for glass fiber and of a test plant for synthetic rubber was completed.

Jan. 30: The regulations for the sub-assistants of the Institute were formulated.

May 29: The regulations for the Standing Committee of the Institute were revised.

June 11: Scientific achievements of the Horiba, Kita, Shikata, and Sawai Laboratories were presented for the Emperor's inspection at The Kyoto Detached Palace.

June 25: In accordance with the Imperial Ordinance No. 423, "Assistants shall be full-time 23 persons" was revised to "— full-time 22 persons" in Art. 6 of the Official Organization Law.

Dec. 16: The construction of a test plant for colloidal chemistry was started.

#### 1941

Mar. 30: The construction of the test plant for colloidal chemistry was completed.

Nov. 28: In accordance with the Imperial Ordinance No. 1020, "full-time 22 persons" was revised to "full-time 24 persons" in Art. 6 of the Official Organization; and "9 persons" to "10 persons" in Art. 8.

**1942**

Mar. 14: Profs. Mayeda, Shikata, Nishimura who had been transferred to other positions, their laboratories were abolished, and the Utzino, Katagiri, K. Inouye and Sawamura Laboratories were established.

July 3: With the resignation of Prof. Kita at his retiring age, the Kita Laboratory was abolished, and the Sakurada, Kodama, Oda, Sasaki and Ishibashi Laboratories were newly established.

Sept. 25: Director Gen-itsu Kita, Prof. of Kyoto (Imperial) University, was relieved of the directorship at his own request, Prof. Shinkichi Horiba of Kyoto (Imperial) University was appointed Director.

Oct. 9: The Takagi and Kariyone Laboratories were established.

Dec. 17: The Horio Laboratory was established.

**1943**

Jan. 1: In accordance with the promulgation of the Municipal Organization Law, the address of the Institute was changed from Aza-Kosobe, Takatsuki-cho, Mishima-gun, Osaka Prefecture to Aza-Kosobe, Takatsuki City, Osaka Prefecture.

Jan. 8: The Tachi and Inouye (Yoshiyuki) Laboratories were established.

Jan. 13: The Yukawa Laboratory was established.

Mar. 12: With the death of Prof. Uno, Uno Laboratory was abolished, and the Horiba 2nd Laboratory was established.

May 1: The Abe Laboratory was established.

Oct. 5: In accordance with the Imperial Ordinance No. 760, "10 persons" was revised to "13 persons" in Art. 8 of the Official Organization Law.

**1944**

May 5: To the Experimental Forest Station was transferred the authority of using the test plant for tundra and its grounds in Saghalien.

Aug. 22: In accordance with the Imperial Ordinance No. 515, "24 persons" was revised to "28 persons" in Art. 6; and "13 persons" to "17 persons" in Art. 8.

Dec. 1: The Hirata Laboratory was established, and the Horiba 2nd Laboratory was abolished.

Dec. 18: With the resignation of Prof. Matsumoto at his retiring age, the Matsumoto Laboratory was abolished.

**1945**

June 15: In accordance with the Imperial Ordinance No. 372, "28 persons" was revised to "30 persons" in Art. 6; and "17 persons" to "19 persons" in Art. 8.

Aug. 15: The Pacific War came to a close.

Nov. 30: Director Shinkichi Horiba, Prof. of Kyoto (Imperial) University was relieved of the directorship at his own request. Prof. Kinsuke Kondo of Kyoto (Imperial) University was appointed Director.

**1946**

Apr. 1: In accordance with the Imperial Ordinance No. 207, "Director; members; Assistants; Clerks" were revised to "Director; Educational Instruction

Officials, full-time 19 persons of 1st or 2nd Grade, full-time 30 persons of 3rd Grade; Educational Administrative Officials, full-time 4 persons of 3rd Grade" in Art. 3; "be appointed by the Education Minister from among ——" was revised to "be assumed by an educational instruction official who ——" in Art. 4; and from Art. 5 to Art. 8 were rescinded.

Apr. 5: The Shishido Laboratory was established.

Dec. 1: Director Kinsuke Kondo, Prof. of Kyoto (Imperial) University was relieved of the directorship at his own request.

Prof. Ryusaburo Nozu of Kyoto (Imperial) University was appointed Director.

#### 1947

July 4: The regulations for the Standing Committee of the Institute for Chemical Research was revised.

July 25: With the resignation of Prof. Horiba at his retiring age, the Horiba Laboratory was abolished, and the Goto Laboratory was newly established.

Sept. 30: In accordance with the Imperial Ordinance No. 204, "Kyoto Imperial University" was renamed "Kyoto University" under the Official Organization Law.

#### 1948

Sept. 1: The regulations for the Standing Committee of the Institute were revised.

Sept. 30: Director Ryusaburo Nozu, Prof. of Kyoto University was released of the directorship at his own request.

Prof. Senji Utzino of Kyoto University was appointed Director.

#### 1949

May 31: In accordance with the Law No. 150 the Official Organization Law (The Imperial Ordinance No. 313, October 1926) was abolished.

#### 1950

Apr. 30: With the resignation of Prof. Arakatsu at his retiring age, the Arakatsu Laboratory was abolished, and the Utzino 2nd Laboratory was established.

May 15: With the revision of the Rules 8-1 of the National Personnel Authority, the official grades were abolished.

June 9: The Kimura Laboratory was established, and the Utzino 2nd Laboratory was abolished.

Dec. 20: With the death of Prof. Hideki Hirata, the Hirata Laboratory was abolished, and the Utzino 2nd Laboratory was established.

## General Survey of Accounts

### 1. Budgets & Settlements of Revenue

| Year | Budget | Settlement | Year | Budget   | Settlement |
|------|--------|------------|------|----------|------------|
| 1926 | ¥ —    | ¥ 10,139   | 1939 | ¥ 67,747 | ¥ 94,924   |
| 1927 | 50,487 | 23,159     | 1940 | 94,003   | 112,795    |
| 1928 | 50,487 | 31,674     | 1941 | 89,603   | 102,505    |
| 1929 | 50,487 | 23,947     | 1942 | 89,603   | 142,148    |
| 1930 | 48,467 | 27,801     | 1943 | 87,562   | 120,878    |
| 1931 | 47,747 | 27,221     | 1944 | 87,562   | 108,418    |
| 1932 | 51,377 | 33,799     | 1945 | 87,562   | 106,639    |
| 1933 | 84,297 | 76,146     | 1946 | 87,562   | 121,092    |
| 1934 | 67,747 | 81,296     | 1947 | 282,022  | 218,906    |
| 1935 | 67,747 | 86,223     | 1948 | —        | 328,740    |
| 1936 | 67,747 | 62,054     | 1949 | 300,000  | 300,000    |
| 1937 | 67,747 | 114,801    | 1950 | 400,000  | 595,800    |
| 1938 | 67,747 | 77,237     |      |          |            |

### 2. Budgets & Settlements of Expenditure

| Year | Ordinary Expenses |            | Extraordinary Expenses |            |
|------|-------------------|------------|------------------------|------------|
|      | Budget            | Settlement | Budget                 | Settlement |
| 1926 | ¥ 59,244          | ¥ 54,257   | ¥ —                    | ¥ —        |
| 1927 | 50,798            | 50,796     | 20,000                 | 11,538     |
| 1928 | 59,244            | 58,954     | 29,406                 | 29,406     |
| 1929 | 69,855            | 69,854     | —                      | —          |
| 1930 | 69,605            | 69,603     | —                      | —          |
| 1931 | 67,849            | 67,849     | —                      | —          |
| 1932 | 75,550            | 75,550     | 4,327                  | 4,325      |
| 1933 | 134,944           | 134,944    | —                      | —          |
| 1934 | 127,452           | 127,452    | 5,000                  | 4,999      |
| 1935 | 127,741           | 127,741    | 23,852                 | 23,852     |
| 1936 | 102,671           | 102,671    | —                      | —          |
| 1937 | 138,507           | 138,506    | 106,427                | 106,426    |
| 1938 | 149,194           | 149,193    | 6,792                  | 6,792      |
| 1939 | 181,204           | 181,203    | 188,000                | 187,998    |
| 1940 | 214,859           | 214,858    | 137,778                | 137,776    |
| 1941 | 196,917           | 196,916    | 6,996                  | 6,986      |
| 1942 | 203,824           | 203,823    | 6,760                  | 6,759      |
| 1943 | 251,227           | 251,226    | 16,781                 | 16,781     |
| 1944 | 218,885           | 218,884    | 130,875                | 130,865    |
| 1945 | 234,140           | 234,139    | 87,330                 | 87,328     |
| 1946 | 388,386           | 388,385    | 585,214                | 585,213    |
| 1947 | 3,656,204         | 3,656,200  | —                      | —          |
| 1948 | 8,631,890         | 8,628,997  | —                      | —          |
| 1949 | 18,438,114        | 18,437,389 | —                      | —          |
| 1950 | 22,249,122        | 22,246,527 | —                      | —          |

### 3. Grants for Scientific Reserches

| Year | Yearly Amount | Item |
|------|---------------|------|
| 1939 | ¥ 63,550      | 9    |
| 1940 | 63,550        | 12   |
| 1941 | 107,700       | 17   |
| 1942 | 100,150       | 17   |
| 1943 | 123,785       | 26   |
| 1944 | 190,000       | 38   |
| 1945 | 91,500        | 23   |
| 1946 | 139,300       | 45   |
| 1947 | 165,200       | 41   |
| 1948 | 1,073,500     | 52   |
| 1949 | 1,294,000     | 50   |
| 1950 | 1,723,000     | 48   |
| 1951 | 495,000       | 9    |

### 4. Scholarship

| Year | Yearly Amount | Donator                                                 |
|------|---------------|---------------------------------------------------------|
| 1929 | ¥ 600         | Mr. Y. Takagi.                                          |
| 1932 | 800           | Nippon Rayon Co. Ltd. & others (5 persons)              |
| 1933 | 3,000         | Dainippon Jinzo Hiryo Co. Ltd. & others<br>(8 persons)  |
| 1934 | 12,500        | Mr. G. Inoue & others (6 persons)                       |
| 1935 | 3,500         | Mitsubishi Kogyo Co. Ltd. & others (2 persons)          |
| 1936 | 7,500         | Mr. S. Horiba & others (3 persons)                      |
| 1937 | 108,100       | Sumitomo Honsha Co. Ltd. & others (6 persons)           |
| 1938 | 11,000        | Nippon Butsuri Kagaku Kenkyukai & others<br>(9 persons) |
| 1939 | 53,500        | Sumitomo Kagaku Kogyo Co. Ltd. & others<br>(3 persons)  |
| 1940 | 202,359       | Sumitomo Honsha Co. Ltd. & others (7 persons)           |
| 1941 | 324,700       | Nippon Senryo Co. Ltd. & others (5 persons)             |
| 1942 | 198,000       | Taniguchi Kogyo Shoreikai & others (7 persons)          |
| 1943 | 21,000        | Sumitomo Kagaku Kogyo Co. Ltd. & others<br>(3 persons)  |
| 1946 | 69,000        | Dainippon Jyochugiku Co. Ltd. & others<br>(11 persons)  |
| 1947 | 15,000        | Dainippon Jyochugiku Co. Ltd. & others<br>(2 persons)   |
| 1948 | 71,500        | Tsubakimoto Seisakusho Co. Ltd. & others<br>(5 persons) |
| 1949 | 60,000        | Tsubakimoto Seisakusho Co. Ltd. & others<br>(3 persons) |
| 1950 | 65,000        | Wakodo Kenkyusho & others (3 persons)                   |

### 5. Grants for Assigned Researches

| Year | Yearly Amount | Item | Year | Yearly Amount | Item |
|------|---------------|------|------|---------------|------|
| 1933 | ¥ 4,500       | 1    | 1943 | ¥ 99,600      | 9    |
| 1935 | 1,000         | 1    | 1944 | 74,670        | 8    |
| 1936 | 2,835         | 2    | 1945 | 69,900        | 5    |
| 1937 | 21,536        | 4    | 1946 | 107,100       | 8    |
| 1938 | 23,450        | 5    | 1947 | 149,000       | 9    |
| 1939 | 30,783        | 5    | 1948 | 150,000       | 6    |
| 1940 | 53,800        | 8    | 1949 | 300,000       | 7    |
| 1941 | 50,700        | 6    | 1950 | 410,000       | 7    |
| 1942 | 76,700        | 6    |      |               |      |

### 6. Papers

|                                                                                                                                                                |         |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------|
| The Reports of the Institute for Chemical Research,<br>Kyoto University                                                                                        | Vol. 1  | Published Jan. 1929 |
| Scientific Reports of the Institute for Chemical<br>Research, Kyoto University                                                                                 | Vol. 1  | Nov. 1929           |
| The Reports of the Institute for Chemical Research<br>Kyoto University                                                                                         | Vol. 2  | June 1931           |
|                                                                                                                                                                | Vol. 3  | Mar. 1933           |
|                                                                                                                                                                | Vol. 4  | June 1934           |
|                                                                                                                                                                | Vol. 5  | Aug. 1935           |
|                                                                                                                                                                | Vol. 6  | June 1936           |
|                                                                                                                                                                | Vol. 7  | Aug. 1937           |
| 10 Jahre Institut für Chemische Forschung an der<br>Kaiserlichen Universität zu Kyoto, 1925-1935                                                               |         | Apr. 1938           |
| The Reports of the Institute for Chemical Research,<br>Kyoto University                                                                                        | Vol. 8  | July 1938           |
|                                                                                                                                                                | Vol. 9  | May 1939            |
|                                                                                                                                                                | Vol. 10 | Nov. 1939           |
|                                                                                                                                                                | Vol. 11 | Apr. 1941           |
|                                                                                                                                                                | Vol. 12 | Mar. 1944           |
|                                                                                                                                                                | Vol. 13 | Mar. 1947           |
|                                                                                                                                                                | Vol. 14 | Dec. 1941           |
|                                                                                                                                                                | Vol. 15 | Nov. 1946           |
|                                                                                                                                                                | Vol. 16 | Dec. 1947           |
|                                                                                                                                                                | Vol. 17 | Mar. 1949           |
|                                                                                                                                                                | Vol. 18 | July 1949           |
|                                                                                                                                                                | Vol. 19 | Dec. 1949           |
| Bulletin of the Institute for Chemical Research,<br>Kyoto University<br>(Re-titling "The Reports of the Institute for Chemical<br>Research, Kyoto University") | Vol. 20 | Mar. 1950           |
|                                                                                                                                                                | Vol. 21 | June 1950           |
|                                                                                                                                                                | Vol. 22 | Sept. 1950          |
|                                                                                                                                                                | Vol. 23 | Dec. 1950           |
|                                                                                                                                                                | Vol. 24 | Mar. 1951           |

## 7. Patent

The Institute has acquired about eighty patent-rights since its establishment, of which following patents are still valid.

- Pat. No. 105102: The method of preparation of certain substances which are insoluble in water and organic solvent.
- Pat. No. 111701: Temper-hardened cobalt-bronze
- Pat. No. 111702: The treatment of tungsten ore.
- Pat. No. 112362: Temper-hardenable cobalt-bronze.
- Pat. No. 115096: The treatment of tungsten ore.
- Pat. No. 116066: The method to improve the aroma of tea.
- Pat. No. 116610: The treatment of molybdenum or tungsten compounds.
- Pat. No. 116611: ditto.
- Pat. No. 116778: Manufacture of diaphragm for dialysis or filtration.
- Pat. No. 116908: Temper-hardened cobalt-alloy.
- Pat. No. 116937: Manufacturing method of material for plastics from tundra.
- Pat. No. 121064: The treatment of vanadium ore or molybdenum ore.
- Pat. No. 121645: Manufacturing method of plastics from vegetable protein.
- Pat. No. 122810: Condensing and hardening method of animal and vegetable protein.
- Pat. No. 123194: Improvement of the method to improve the aroma of tea.
- Pat. No. 123430: Manufacturing method of vegetable protein.
- Pat. No. 124203: Manufacturing method of the active charcoal from the by-products of soy-bean-application-industry.
- Pat. No. 126845: Steam generator utilizing of chemical reaction.
- Pat. No. 127559: Viscose fibers with minute bubbles (hollow fibers of emulsion type).
- Pat. No. 130323: Method of preparation of white pulp for paper-making.
- Pat. No. 132993: A method of producing glass fibers.
- Pat. No. 134068: A method of producing glass wool.
- Pat. No. 134827: Preparation of arylized higher fatty alcohols from arylized unsaturated fatty acids by catalytic reduction under high pressure.
- Pat. No. 137298: A method of producing glass wool.
- Pat. No. 137789: An apparatus for the spinning of glass fibers.
- Pat. No. 139554: Removal of sulphur from gases.
- Pat. No. 141026: A new method for preparation of iso-butyl-alcohol.
- Pat. No. 142908: Reaction chamber for oil synthesis.
- Pat. No. 142939: Manufacture of synthetic liquid fuel.
- Pat. No. 143889: Preparation of colloidal solutions with artificially induced radioactivity.
- Pat. No. 144921: Reaction chamber for oil synthesis.
- Pat. No. 149354: A new synthesis of indol-3-acetic acid.
- Pat. No. 150952: Manufacture of liquid hydrocarbon.
- Pat. No. 153925: A new method for preparing pure polyvalent alcohols.
- Pat. No. 154836: A method of manufacturing grinding wheel.
- Pat. No. 156434: A new method for preparation of pyridine bases by condensation of acetylene with ammonia.
- Pat. No. 156987: Hydrocarbon synthesis from Co and H<sub>2</sub>.
- Pat. No. 160788: Improved synthetic method of the  $\alpha$ -chlor-methyl-naphthalene.
- Pat. No. 160920: Retting of fiber plants by fermentation.
- Pat. No. 163023: Removal of sulfur from gases.
- Pat. No. 164012: A method for producing synthetic fibers with structure of super high polymer.
- Pat. No. 169527: Preparation of stable complex salts of arylstibinic acids.

- Pat. No. 171219: Powdered plant growing agent.
- Pat. No. 172230: A method of the activation of papain enzyme.
- Pat. No. 173900: The method of manufacturing ship's bottom paint.
- Pat. No. 175971: Isomerization of olefinic hydrocarbons.
- Pat. No. 176510: A method to manufacture branched olefines from alcohols with normal carbon chains.
- Pat. No. 183526: Process of conversion of phenols or phenols-containing tars into fuel for internal-combustion-engine by destructive hydrogenation at ordinary pressure.
- Pat. No. 186712: A method to manufacture alkylresorcinols.