Uniterm Index to U. S. Chemical Patents—User Evaluation*

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Information for Industry's *Uniterm Index to U. S. Chemical Patents* is based on a coordinate concept system. It is considered a valuable research tool in our Research and Development Center and its use is now standard practice for formal literature searches and initial state of the art searches by our Technical Information Services Department. An educational program was necessary to instruct our research personnel in its contents and use. Manual searching by chemists has established its browsability. A short patent search is included to demonstrate its use.

The *Uniterm Index to U.S. Chemical Patents* has been mentioned in the literature merely by name (*1–3*), as well as amply described for computer search of the patent literature (*4–6*). This paper describes the system and our use of it with manual search techniques.

THE SYSTEM

The *Uniterm Index* is based on the familiar coordinate concept system of indexing using from a low of about 5 to as high as 170 descriptors per patent (*6*), depending upon the complexity of the individual patent. In 1964 we subscribed to the *Uniterm Index* in book form and the microfilm, which are updated bimonthly. This index includes U.S. Patents from 1950, while the patents on microfilm start with 1959. As of July 26, 1966, there was a total of about 169,000 chemical or chemically related patents in the system. This compares with the approximately 127,000 patents listed in the Chemical Patents Group of the U.S. Patent Office for the same period.

The *Uniterm Index* is published in two volumes for each year. One volume is a dual dictionary of index terms and the other contains reprints of patent references from the *Official Gazette of the U.S. Patent Office*. The "Reference Aid" is a thesaurus of the 9600 Major Terms and "See" references. A major term is one that has been indexed in at least ten patents in one year.

A search is made by using the dual dictionary of index terms with listings of the accession numbers referring to all of the patents which have been keyworded under each particular term. The first two-thirds of this dual dictionary is devoted to the major terms listed in the thesaurus. The remainder contains Minor Terms, Patentees, Assignees, and Patent Numbers—all with listings of appropriate accession numbers.

Probably the best method to demonstrate this system is to illustrate a search, such as "luminescent vinyl floors for 1962." This is a rather brief search, but as it is carried out step by step, you will find that one of the terms in the subject is not a term in the system but a synonym, and you will also see how false drops or "noise" can occur.

Figure 1 is a close-up of two of the terms being coordinated—*vinyl* and *floor*—with the familiar ten columns of accession numbers. By coordinating these two concepts, the accession numbers circled are obtained. These seven numbers are then transcribed to a sheet for coordinating with the next concept, *luminescent*.

By reference to the thesaurus, we find *luminescence see light*, indicating that *luminescence* is not a term, but a synonym. Under *light*, we find *light*, *luminescence*, *illumination*, and *luminosity*. Immediately, it is realized that the coordination of this concept with the previous findings may produce false drops on light stability of vinyl floors, illumination or luminosity of vinyl floors, and possibly some others.

By coordinating the above seven accession numbers with *light*, only two accession numbers are found (8125 and 9233) which are common to all three terms.

The next step is to check the second volume, containing reprints from the *Official Gazette of the U.S. Patent Office*, to determine whether either of these two patents is relevant. Under 9233, the claim refers to "A polyvinyl halide composition stabilized against deterioration by light." This is obviously a false drop. However, the title for 8125 is "Luminous Floor or Wall Covering . . . ," a patent which is relevant to our search.

The next step is to put the reel of microfilm containing the patent with accession number 8125 for the year 1962 into a reader-printer. After reading the patent, if the chemist wants a copy for future study, he merely presses a button and receives a print.

Now that the mechanics of this system have been illustrated, the basic question is, "Do the chemists use it?" They do.

EDUCATIONAL PROGRAM

After receipt of the *Uniterm Index* and microfilm, an announcement was made in our *Technical Information Bulletin* that the *Uniterm Index to U.S. Chemical Patents* was ready for use and that trained professionals in our group were available to aid anyone in its use. After several weeks with no customers, an inquiry revealed that the announcement had not done the necessary job. The system

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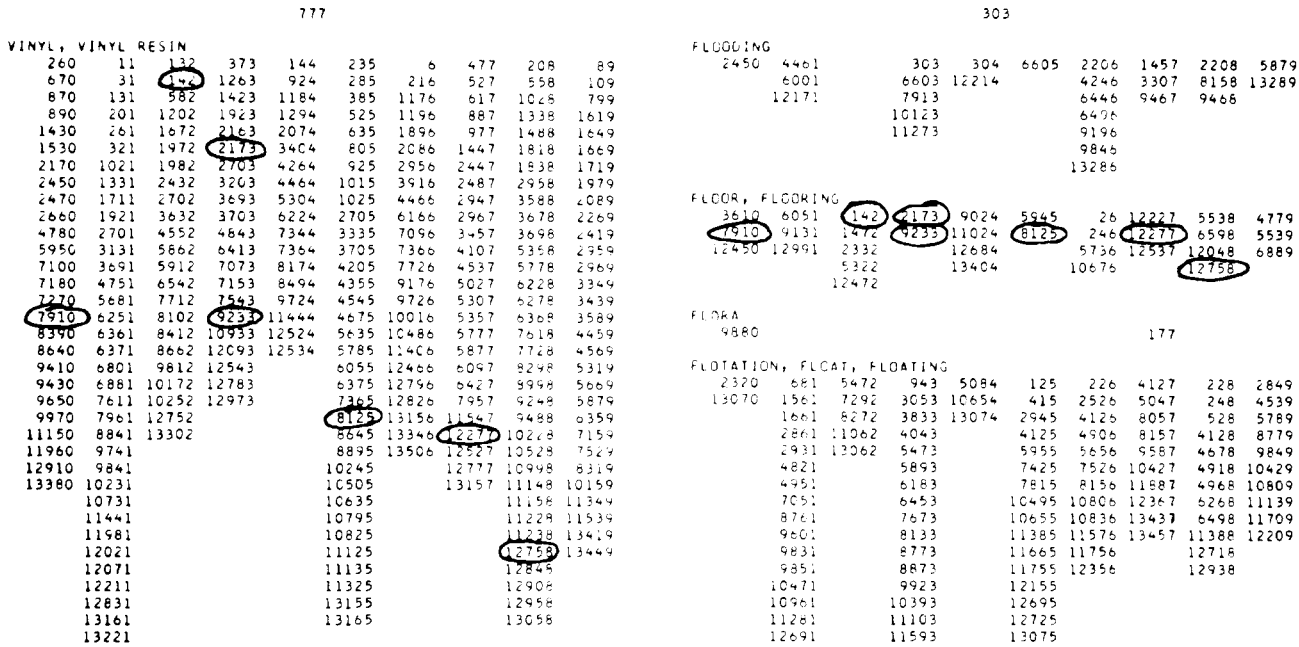

Figure 1. Coordination of the terms "vinyl" and "flooring"

was then demonstrated to our General Managers who recommended that it be presented to our entire supervisory staff. This was done in about ten sessions with small groups. Our Supervisors felt that everyone at the Research Center should be instructed, so a presentation was made to the entire group. These presentations included indoctrination in the coordinate concept system of indexing. Each presentation, except the first, took about 2 hours. Admittedly, this was a big job—but it is now paying dividends.

USE OF THE SYSTEM

Since the adoption of this system, our Patent Department has delegated to our Technical Information Services Department the responsibility of carrying out initial "state of the art" searches, whenever possible. Instead of receiving a stack of patents 4 to 6 inches thick, the person making the request receives an edited report including a search of the published literature and in-house documents.

It has been found that the manually-operated system has "browsability," so we encourage the chemists to do their own searching. They invariably find patents which the Technical Information Services Staff might have considered false drops, whereas they may be of interest for some other assignment.

One of our men, working in a rather broad field, went to the extreme of going through the entire thesaurus and listing all of the terms which he thought might be useful to him. Now, when he has a problem, he knows whether or not there is anything in the *Uniterm Index*, and if there is, he knows what specific terms to use for his search. In many of our Technical Reports, and other in-house documents, individuals have used the *Uniterm Index* as a source for some of their references. Our own department uses the *Uniterm Index* routinely in carrying out formal literature searches for members of our Research Center. We have found it a valuable addition to *Chemical Abstracts*, the *Engineering Index*, and other commonly used secondary reference sources.

Prior to the availability of this service in our Research Center, all requests for U.S. Patents were sent automatically to our Patent Department located in our main office building about 6 miles away. After delays of 4 to 6 weeks, their order was finally processed through the Patent Office in Washington and we received a copy. Today, requests for copies of U.S. Patents are checked in the *Uniterm Index* and, in most cases, we have the patents on microfilm. This process involves a few minutes rather than weeks.

ECONOMICS

Before subscribing to the *Uniterm Index*, our Patent Department estimated the savings they would expect from this service as a search tool—and it was substantial. The doubling of the cost of patents to 50 cents each, put into effect in the last quarter of 1965, made the economic argument even stronger. Since the average length of patents is between 4 and 5 pages, our copy cost per patent (about 7 cents per page) is considerably less than its purchase cost. Furthermore, the intangible but real cost of merely processing an order is eliminated. In a large company, this can run into several dollars per order. Also, the elimination of the weeks of waiting for a patent ordered from Washington is another important plus factor.

To illustrate the value of this service, I shall cite one instance. Shortly after the *Uniterm Index* was obtained, I received a copy of a Research Assignment outlining a proposed study to synthesize a certain polymer. A search was made, and in about 20 minutes a patent was found

on the synthesis of this identical polymer. The individual was notified and another "reinvention of the wheel" prevented. At the same time, a savings of about 1000 hours (the amount included in the Research Assignment) was made. From our viewpoint, we had already paid for the *Uniterm Index* for several years. What this service can save in dollars and the time of the research chemist is significant. But of even greater importance, the chemist will not be wasting his time doing what has already been done.

As Skolnik (7) has stated so well, "The index service for United States chemical patents provided by Information for Industry is comprehensive, economical, and timely... The effect of this abstract service on many company patent indexing operations illustrates the statement... that information groups should not undertake or continue an operation which is handled better, faster, and more economically by someone else."

PROBLEMS

Unfortunately, no system is perfect; no system is without problems. During the past year and a half the microfilmed patents were changed from 35- to 16-mm. film. This of course, meant that at least two different lenses were required for our reader-printer. We now use a 12.05× lens for 35-mm. film; and an 18.25× and a 20.78× lens for 16-mm. film.

In a search where many patents are found they may be on several reels, both 35- and 16-mm. The process involved in searching and changing reels, in addition to that required to change lenses and adjust the light source in the reader-printer, is time consuming. This operation could be accelerated considerably if the patents were on microfiche. The economics of supplying the patents on microfiche should be investigated. A change to microfiche, of course, would not help the present problem and would in fact mean that patents would then be on 35-mm. reels, 16-mm. reels, *and* microfiche. However, microfiche has been standardized, and its use is more versatile than reel microfilm.

In the example used to demonstrate the mechanics of searching, one false drop occurred and one relevant patent was found. Experience with larger searches indicates that relevancy may be much lower, at times approaching only about 10%. This would be expected in an uncontrolled vocabulary system which averages 40 terms per patent, contains many synonyms, and has no hierarchy (the keyworders merely underline terms in the patent). However, high term usage per document has the advantage that it tends to reduce the chance of not finding a relevant document. In research, we feel it is more important to find all of the relevant patents even though the number of false drops may be high and time-consuming.

SUMMARY

The use of the *Uniterm Index to U.S. Chemical Patents* has become a very helpful research tool in our Research and Development Center. We have saved both time and money and have provided a needed extra service for both our technical and patent personnel.

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