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Asbestos and health and the public

Asbestos, for which there is no real substitute in a large number of applications, is useful in countless ways and saves thousands of lives each year, thanks to its fireproof and thermal insulation properties. Besides being a unique product, a natural substance whose characteristics no other natural or man-made material can duplicate, asbestos is, without the shadow of a doubt, one of the safest products on the market today, in the applications for which it is intended.

Scientific and medical research and studies on asbestos, which have been carried out for a longer period of time and more intensively than for any other substance used in the manufacturing of substitute products, have demonstrated that asbestos exposure levels to which the general public and the consumer can be subjected are, at worst, infinitesimal and involve no significant health hazard.

Significant results

The preliminary results of an epidemiological study bearing on the populations of several towns in various regions and carried out according to a rigourously scientific methodology by the Québec Department of Social Affairs have shown that mortality rates due to respiratory deficiencies, lung diseases or other ailments which asbestos could possibly be associated with, among a number of other causes, are no higher in asbestos mining communities than elsewhere.

If people who have been living in asbestos mining towns for generations are not especially prone to the illnesses which are presumably related to a prolonged exposure to concentrations of fibre dust, it follows that asbestos involves no risk whatsoever for the public at large.

Quantified risk

Neither do consumers and users of asbestos products risk exposure levels which are harmful to their health. A team of scientists from McGill University, in Montréal, has established that the risk of lung cancer for asbestos workers who would continually be exposed to levels of one airborne asbestos fibre per cubic centimetre is equivalent to the risk involved in smoking two cigarettes a week. By definition, asbestos workers are the people most likely to be exposed to high fibre concentrations and, outside the asbestos industry's working environment, levels of exposure to asbestos dust never reach anywhere near one fibre per cubic centimetre.

In fact, as unexpected as it may seem, researchers have even demonstrated that asbestos can be the best protective agent against... the dangers of asbestos. Thus, to lessen the natural fibre content of water or wine, no filter is more efficient than an asbestos filter.

Safe products

Asbestos-based products involving a possible risk have been taken off the market and the public can rely with confidence on current asbestos products in which the fibre is literally bonded in cement, resins or asphalt, so that dust emissions are nil or negligible. In friction products, the rise in temperature within the mass chemically modifies the fibre, transforming it into inert and completely harmless particles.

In the case of other mineral fibres, including fibreglass, and the various substitutes which are being tried in certain applications, practically nothing is known as regards their biological effects on man and their possible harmfulness. On the other hand, the technical and medical data available on asbestos and the technological improvements applied to its utilization make it possible to benefit fully from its numerous advantages in complete safety.

A delegation of the Soviet asbestos industry visits the Québec producers

A Soviet delegation, comprising representatives of both the government and the asbestos industry of the USSR, made an official tour of the Québec asbestos region between November 26 and December 6 The visit was at the invitation of the Association des mines d'amiante du Québec and five producing companies Johns-Manville, Lac d'amiante du Québec, Carey-Canada, Les Mines d'amiante Bell and Société Asbestos.

The Soviet delegation's tour was part of a program of reciprocal visits which first began in 1960, when a delegation of the Canadian asbestos industry was first a guest of the government of the USSR A few months later, a Soviet mission, in its turn, visited operations in Québec Since then, there have been three similar exchanges, the last Canadian visit to the USSR dating back to May 1978.

An exhaustive tour

This time, the program of activities for the Soviet guests led them to Thetford Mines, Black Lake, East Broughton and Asbestos, where they were able to acquaint themselves with all the mining installations and operations, in the mines, in the processing plants, and related services, such as the laboratories and maintenance shops They also visited the Institut de médecine industrielle of Thetford Mines, a model of its type, established by the asbestos producers of the region

Aside from the official dinners and receptions during which the Soviets met the principal executives in charge of operations in the producing companies, a number of technical sessions gave rise to an exchange of information and to numerous discussions on questions of mutual interest to Canada and the Soviet Union, the two largest asbestos producers in the world

Remarks by Mr. Anpilov

At the close of the visit, the head of the Soviet delegation, A.Y Anpilov, Deputy Minister of Building Materials of the USSR, stressed the importance of these exchanges for the Soviets "The tours of the mining complexes and the personal contact between experts of both our countries, he stated, are particularly conducive to effective cooperation, especially at the technological level." When asked about the different characteristics of the mining and processing of asbestos in Canada, as opposed to the USSR, Mr Anpilov remarked that, in terms of mechanization and automation of production, the methods and equipment seem to be essentially the same, while they differ considerably when it comes to the transporting of the ore and the tailings

"In general, explained the Deputy Minister, in the mining complexes of the Soviet Union, the processing plants are not adjacent to the mines, as in Québec, they are located at distances that may vary between five and ten kilometers And, in order to develop a green belt around the mining towns, the waste dumps are located a long way from the mills A considerable amount of rail equipment is therefore required to transport the tailings over long distances."

Mr Anpilov also noted that the ore mined in the USSR is much harder than that produced in Québec The hardness of the rock causes more frequent breakdowns of machinery, particularly during processing operations, thus involving greater maintenance The maintenance services connected with asbestos mining operations in the USSR also differ with those in Québec in the sense that the Soviets manufacture a certain portion of the required equipment, while the Québec producers concern themselves mainly with the maintenance and the overhauling of equipment purchased from independent manufacturers

The Soviet visitors with two representatives of management of Johns-Manville Canada in Asbestos From left to right: Boris E Zarubin, interpreter, Eugene Y.U Kazakov, Section Head at the Institute of Asbestos Construction Materials, Vladimir Y.A Siderov, asbestos production specialist Alexander Y Anpilov, Deputy Minister of Building Materials of the USSR and head of the delegation R.B Grosham, Manager of the Jeffrey Mine of Johns-Manville, Mrs Thorpe, interpreter, James P Power, Operations Manager of Johns-Manville, Yuri I Glazunov, Head of the Technology Department of Glavasbest and Yvan H Korablev, Deputy Director General of UralAsbest

Soviet production

According to the latest figures, Soviet fibre production in 1978 reached 2 350 000 short tons, and everything leads to believe that this production will double within the next few years On this matter, Mr Anpilov referred to a program to modernize older mills in order to increase their capacity He also mentioned the recent opening of a new processing plant, mill No 7, at the UralAsbest complex and the starting up of mining at the Kiembay deposit in the southern Urals

At Kiembay, the first part of the plant is already in operation and should produce some 250 000 tons of fibre this year Once construction is completed, Kiembay production should reach 500 000 tons annually

As Mr Anpilov explained, the Kiembay project was implemented as part of a construction development program which involves the Comecon countries, including Bulgaria, Hungary, Czechoslovakia, Rumania, East Germany, Poland and, of course, the USSR Each of these republics has contributed to the construction costs of the Kiembay plant and each shall, in exchange, receive a share of the production in proportion to its investments

Alexander Y Anpilov, Deputy Minister of Building Materials of the USSR

Domestic needs

According to Mr Anpilov, the demand for asbestos fibre in the USSR is constantly increasing "In fact, he stated, we are currently using approximately 80% of our total production, particularly in the sector of asbestos-cement materials. And, with the continuing industrialization of the USSR and the related construction projects, we will be able to continue to absorb the same percentage of our fibre production for a number of years" Among the other applications mentioned by Mr Anpilov are residential construction materials, insulation products and industrial machinery parts

To a question concerning the health problems related to asbestos, Mr Anpilov replied that "thanks to measures taken in order to improve health and safety conditions in our mines and mills, the problem of asbestos and health is almost non-existant in the USSR" He pointed out that the cases of asbestosis being detected today are found among workers exposed to conditions that prevailed in the past Moreover, epidemiological studies conducted in the regions where the asbestos mining complexes are located revealed that the incidence of lung cancer is no higher than in other regions of the USSR where there is no asbestos mining

Soviet and Canadian experts during an information meeting in Thetford Mines

Priority to technology

Mr Anpilov also stressed the necessity for close cooperation in the area of environmental dust emission control "In order to do this, he concluded, we will have to engage in mutual research on methods of counting and measuring fibres so as to arrive at a uniform system which will enable valid comparisons"

It should be noted that, in this last area, Soviet concerns are in line with those of the Canadian asbestos industry Nevertheless, the executives in charge of operations for the AMAQ member-companies noticed that the visitors' priorities were mostly of a technological order The latter were indeed particularly interested, during the tours and discussions, in the operations related to the classification of fibres This was doubtless due to the fact that Soviet engineers have, up until now, been unable to obtain the wide variety of fibres that are produced by the Canadian processing plants It was precisely these problems of classification which led the visitors to initiate negotiations with certain Québec producers with a view to possibly purchasing licenses and equipement

The Soviet delegation

The Soviet delegation included representatives of the government and of the asbestos industry The head of the mission, Alexander Anpilov, Deputy Minister of Building Materials of the USSR, was accompanied by Messrs Yuri I Glazunov, Head of the Technology Department of Glavasbest, Yvan H Korablev, Deputy Director General of UralAsbest, Eugene Y.U. Kazakov, Section Head at the Institute of Asbestos Construction Materials, Vladimir Y A Siderov, former Mills Manager at UralAsbest, currently in training at the Academy of National Economy, and Boris E Zarubin, interpreter for the group

Asbestos and its many uses

Asbestos in plastics: at the service of advanced technology

The plastics industry, one of the most vital and complex of the modern world, has given us such terms as cellulose, polyester, polyethylene, phenol-formaldehyde, vinyl, silicone, thermoplastic, etc , mysteries to which only chemists have the key. One thing is certain however, we live daily with plastics, in their many forms. Yet, what we are often unaware of is that asbestos fibres, both short and long, enter into the composition of several plastic materials, or resins.

Combined with plastics, the asbestos fibre serves as an additive, as a filler and as a reinforcing agent. This is a little-known application, doubtless because asbestos is almost always combined with other fibres and substances in the resinous mixture. For instance, certain automobile air conditioning casings are manufactured according to the following formula 55% asbestos, 10% fibreglass and 35% polyester

High technology industries

Today, several technologically advanced industries use asbestos-containing plastics; the automobile, electronics, chemical and aeronautics industries, among others, and even the aerospace industry

Asbestos-reinforced plastics possess, in effect, a certain number of characteristics which make them appropriate material for the manufacture of parts and equipment in those industries which are subject to extremely stringent standards and requirements

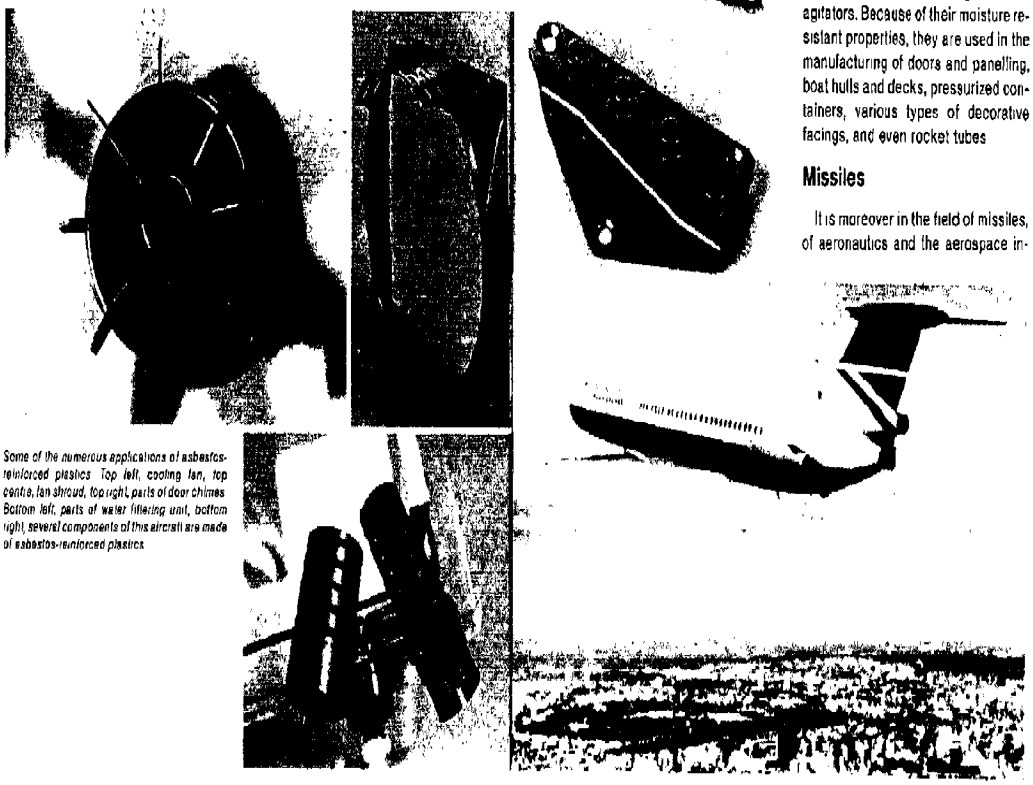
Thus, asbestos-containing resins are particularly suitable for the molding of intricate and odd-sized shapes which are more difficult and more costly to achieve with metals Moreover, once molded, they offer superior rigidity, as well as exceptional resistance to tension, impact, corrosion, chemical agents and wear. Their dielectric properties and their resistance to high temperatures make them ideal thermal and electrical insulation materials.

Reinforcing agent

Asbestos fibres are used in plastic materials mainly for their reinforcing properties Distributed throughout the mixtures, they absorb the energy generated by the pressure and tension to which the composites are subjected, thus assuring their rigidity

The length of the fibres and their proportion to the other ingredients have a direct effect on the resistance of the finished product Thus maximum resistance in phenolic resins is obtained by adding 25% long fibres, this proportion being increased to 45% in the case of silicone The percentage of short fibres varies between 30% and 60%, and both types of fibres are often added to the composites

Used as a filler, asbestos increases the viscosity of the resins. For example, the degree of viscosity of polyester alone is 2 500 centipoises at 75 F, if 20% asbestos is added, the viscosity is increased to 60 000 centipoises With a high fibre content, even thick putties and pastes can be prepared.



Some of the numerous applications of asbestos-reinforced plastics Top left, cooling fan, top centre, fan shroud, top right, parts of door chimes Bottom left, parts of water filtering unit, bottom right, several components of this aircraft are made of asbestos-reinforced plastics

Variety of combinations

Even though asbestos fibres are mainly used in phenolic resin systems and in silicone-based composites, there is a wide variety of possible combinations with other polymers. Thus, many different finished products can be obtained depending on the type of resins and the proportions of the various ingredients used.

Because of their high resistance to corrosion, asbestos-reinforced plastics are frequently used in the chemical industry in the form of tubes. pipes, valves, tanks and liquid containers, agitators, pumps, fume ducting systems, in fact, anywhere equipment might be subjected to strong alkaline conditions or exposed to chemical salts in high concentration

Because of their dielectric properties, asbestos-reinforced plastics are also used in home and industrial products. They are found, for instance, in the insulation of electrical cables, in circuit breakers and in household appliances such as washing machine agitators. Because of their moisture resistant properties, they are used in the manufacturing of doors and panelling, boat hulls and decks, pressurized containers, various types of decorative facings, and even rocket tubes

Missiles

It is moreover in the field of missiles, of aeronautics and the aerospace industry that asbestos-reinforced plastics find their most important and most spectacular application Their high resistance to heat, their low rate of ablation (progressive destruction) and their structural strength play, in fact, an essential role in the proper functioning of a variety of missiles

Very special asbestos-based plastics have indeed been perfected for use in direct rocket blasts, thus contributing to resolving problems caused by the extreme heat. Asbestos composites are also used in the manufacturing of a variety of missile parts: thermal insulation barriers between the engine and the propellent, exhaust pipes, electrical conduits, turbine wheels, bulkheads, ducts, etc The Vanguard rocket nose cone, for example, was made of asbestos-phenolic material Similarly, the portholes of one of the space capsules which returned to earth were sealed and insulated with asbestos-based putty

Sophisticated applications

Asbestos-reinforced plastics also find highly specialized and sophisticated applications in the field of electromagnetic wave transmission Among other things, asbestos-based plastics are used in the manufacturing of high-speed radar scanners which monitor aerial and maritime navigation, and in domes for high-gain antennas used in space communications.

In fact, applications for asbestos-reinforced plastics are many and varied. And as the plastics industry continues to grow, it is likely that chemists will develop an increasing number of products for which the unique properties of asbestos will prove both useful and essential

French delegations on a tour of information in the Québec asbestos region

Three French delegations governmental, scientific and industrial familiarized themselves with the mining installations.

"I must admit that, judging by what I have seen, it is possible to produce asbestos under salubrious and safe conditions and for this reason, I now think that the asbestos industry shall doubtless get a second wind."

This comment was made by Dr. Bignon, advisor to the French government in matters of health and asbestos, in Black Lake before members of the Association des mines d'amiante du Québec, and representatives of the producing companies and of the Société nationale de l'amiante, following a tour of the mining installations in the Québec asbestos region

France-Québec program

Dr. Bignon's remarks were made on the occasion of an official visit by three French delegations, one governmental, another scientific and the third, industrial, which were simultaneously invited, last November, by the government of Québec to come and acquaint themselves with the asbestos mining facilities in Québec.

This tour by the three French delegations was intended as a first step in a France-Québec exchange program in the field of asbestos, the objectives of which were determined by France's Prime Minister, Raymond Barre, and Québec's Premier, René Lévesque, in the spring of 1979

This program, which is to be implemented by the Société nationale de l'amiante, is aimed not only at informing the French, who are essentially consumers of asbestos, on Québec's mining, processing, manufacturing, research and development activities in the field of asbestos, but also at stressing Québec's tangible interest, as a producing centre, in questions concerning asbestos and health

Favorable impression

The French delegates, who visited in particular the Johns-Manville installations at Asbestos and those of Lac d'amiante at Black Lake, made no secret of the fact that they were favorably impressed by the tour, and they expressed the opinion that the open policy applied by the member-companies of the AMAQ had doubtless led to the solution of several problems which have yet to be solved elsewhere

Responsible attitude

Faced with the enormous scope of the Québec asbestos mining activity, both in the mines and in the mills, with the significance of the technological means developed, with the sum of the efforts made to improve the working conditions and with the priority assigned to research and development, the French delegates were better able to measure the import of the asbestos mining industry in Québec and to judge for themselves the responsible attitudes of the producers who, as Dr. Bignon admits, are operating "clean" mines and mills

Members of the scientific delegation visiting the processing plant of Lac d'amiante in Black Lake

During a technical session at the Université de Sherbrooke, Marc Tardieu, Technical Advisor of the AMAQ, (left) explains the functioning of equipment used to collect samples of airborne fibres to André Rebière, from the French Department of Labour, Premysl V Pelnar, Scientific Secretary of the Institut de médecine du travail et de l'environnement de Montréal, Michel Lesage, Medical Advisor of the AMAQ, and Yves Alexandre, of Eternit (France)

In addition to touring the mining installations, the French delegates, some of whom had never visited an asbestos mine, visited laboratories and participated in scientific conferences and technical sessions, which constituted an important first step along the road to future scientific collaboration

Questions of health

Presentations on the research work conducted under the auspices of the Université de Sherbrooke or the AMAQ and on the recent establishment of the Institut de recherche et de développement de l'amiante (IRDA), together with a report on the preliminary results of an epidemiological study conducted by the Québec Department of Social Affairs, contributed to demonstrating the importance that university, government and industrial circles in Québec ascribe to questions of health and safety. The members of the scientific delegation, some of whom are well-known for their negative attitude towards asbestos, were thus exposed to a series of achievements and facts which contrast sharply with certain assumptions or prejudices which may prevail in various European circles

France and Canada, and in particular Québec, have similar attitudes in terms of the regulation of asbestos but, for reasons of a quantitative nature, the problems confronting France seem to be more complex

France's problems

In fact, according to a representative of the French Department of Labour, the use of asbestos being extremely wide-spread, it is difficult to pinpoint not only the enterprises which use it, certain being almost cottage industries, but the persons that may be exposed to it After manufacturing, asbestos products are resold by wholesalers and entrepreneurs, installed by technicians, and maintained by craftsmen. Who are they? How many of them are there? This is a problem which must be solved before France can even hope to formulate and apply adequate regulations. But, in the opinion of the French delegations, the issue of asbestos and health is neither the most serious nor the most pressing problem to be solved, as there are other industrial products, such as vinyl chloride, which pose a more serious threat to the health of workers

Probably because the problem is more easily identifiable in Québec, regulations aimed at protecting the health of workers have been applied and have shown results more rapidly, thus avoiding the threat of extremist measures as are now being contemplated in Europe.

A cooling off

However, in the opinion of certain French delegates, the situation in Europe seems to be stabilizing itself; the paranoia related to the presumed dangers of asbestos seems to have passed, giving way to concern for much more serious problems such as the nuclear issue and vinyl chloride Also the circulation of adequate scientific information has helped calm people's fears.

This last aspect is not the least important in the France-Québec exchanges which are thus opening doors to communication between scientists, industrialists and governments who might otherwise, for lack of this type of initiative, not have had the opportunity to meet other than in confrontation

Best Wishes for a Very Happy New Year

from
L'Association des mines d'amiante du Québec

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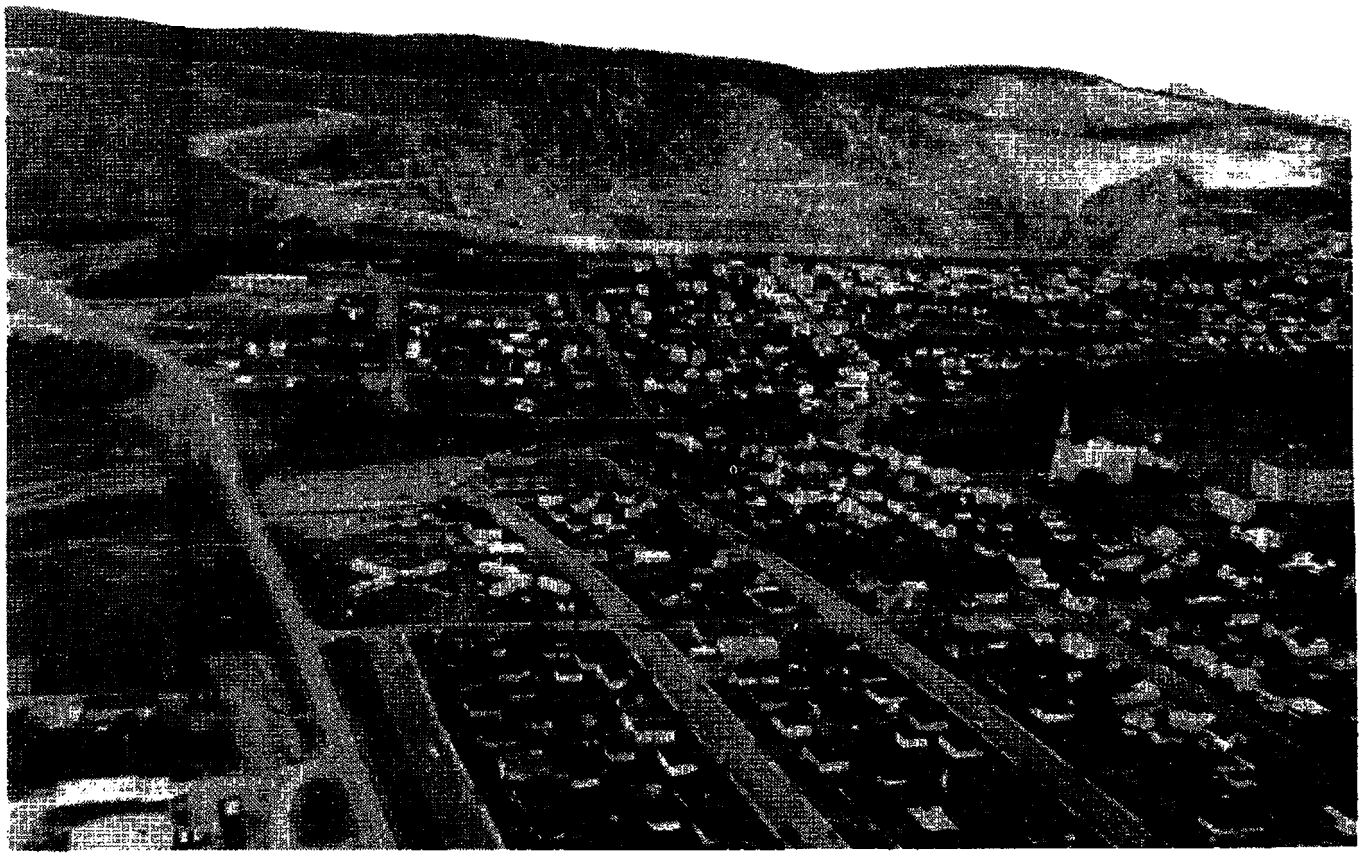

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