Annual Report 1978

AKZO

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Akzo N.V., 82 IJssellaan
6800 LS Arnhem, the Netherlands
Phone (085) 65 19 11 Telex 45438

The annual meeting of stockholders will be held at the RAI Congress Center, Europaplein, Amsterdam, on Tuesday, May 15, 1979, at 10 a.m.

Agenda

1. Opening
2. Report of the board of management for the financial year 1978
3. Approval of the annual accounts and consideration of the proposal, contained therein, to omit the dividend
4. Determination of the number of members of the supervisory council; appointment of members of the supervisory council
5. Appointment of a member of the board of management
6. Annual decision concerning issues as required by the London Stock Exchange*
7. Any other business

* annually recurring agenda item in re compliance with the requirements of the London Stock Exchange concerning the listing of Akzo shares on that stock exchange

Akzo N.V. common stock is listed on the following stock exchanges:

the Netherlands:	Amsterdam
West Germany:	Frankfurt, Düsseldorf and West Berlin
Belgium:	Brussels and Antwerp
United Kingdom:	London
France:	Paris
Norway:	Oslo
Austria:	Vienna
Switzerland:	Zurich, Basel and Geneva

Translation

The symbol ® indicates trademarks registered in one or more countries.

Supervisory council and board of management

Supervisory council

J.R.M. van den Brink, chairman
G. Kraijenhoff, deputy chairman
Y. Scholten, deputy chairman
S.C. Bakkenist
P.M.H. van Boven
A. Herrhausen
H.L. Merkle
H.J. Schlange-Schöningen
Mrs. K. Schudel-van Zwanenberg
W.F.G.L. Starrenburg
J. de Vries
O. Wolff von Amerongen

Board of management

A.G. van den Bos, president
A.A. Loudon, deputy president
J.A. Wolhoff, deputy president
H. van Doodewaerd
A. van Driel
H. Kramers
H.J. Kruisinga
J. Veldman
H.J.J. van der Werf
M.D. Westermann
H.G. Zempelin

Adviser: W.K.N. Schmelzer

Secretary

J.P. Huges

Akzo

Akzo is an international group of companies with 160 operations in 50 countries. The Group employs more than 83,000 people, and its invested capital totals Hfl 6 billion. In 1978, sales aggregated Hfl 10.7 billion.

The Group was formed in 1969 through a merger of AKU and Koninklijke Zout-Organon, both of which were operating internationally. The products comprise man-made fibers, salt, commodity and specialty chemicals, coatings, pharmaceuticals, consumer products, and miscellaneous industrial products.

Akzo's sales are realized by seven organizational entities. The divisions, Enka (mainly man-made fibers), Akzo Zout Chemie, Akzo Chemie, Akzo Coatings, Akzo Pharma, and Akzo Consumenten Produkten, operate on a worldwide scale. In North America our interests are incorporated in the Group company Akzona.

In some countries a national organization exists which renders services to local Akzo companies.

In a world which is growing ever more complex, Akzo recognizes the importance of good communications regarding its policies and activities with those who are directly or indirectly involved with the Group. It accepts the codes of conduct for companies established by the Organization for Economic Cooperation and Development (OECD) and the International Labor Organization (ILO).

Photographs

The photographs in this report show some of our employees in their daily work. These men and women are representative of all those who through their dedication and skills in large measure determine the Group's resilience and performance.

Photographs marked » are by Paul M.M. Hoedemaekers.

Report of the supervisory council

Changes in supervisory council and board of management

At the annual meeting of stockholders held May 10, 1978, Mrs. K. Schudel-van Zwanenberg, F.H. Ulrich and L. Vaubel, whose terms of office had ended, resigned from the supervisory council.

Mrs. Schudel-van Zwanenberg was re-appointed. Mr. Ulrich and Mr. Vaubel had announced that they were not available for re-appointment. Their numerous valuable services to the Company were gratefully acknowledged.

At the meeting, stockholders adopted the proposal to fix the council's membership at twelve and appointed to the council A. Herrhausen, G. Kraijenhoff and H.J. Schlange-Schöningen.

Effective May 10, 1978, the supervisory council decided to appoint Mr. Kraijenhoff a deputy chairman of the council, in addition to Y. Scholten.

Simultaneously with their appointment to the supervisory council, Mr. Kraijenhoff and Mr. Schlange-Schöningen resigned, respectively, as president and as deputy president of the board of management. The meeting expressed great appreciation for their contributions.

Mr. Kraijenhoff completed a distinguished career of almost twenty years, during which he made a major contribution to the development of Koninklijke Zwanenberg-Organon, of Koninklijke Zout-Organon and, after 1969, of Akzo.

The name of Mr. Schlange-Schöningen is associated with the valuable services he rendered to the Group, and especially with the competent and stimulating way in which he contributed to the development of our man-made fiber operations, first with Enka and then in a coordinating position with the Company.

Effective May 10, 1978, the supervisory council appointed A.G. van den Bos president of the board of management and A.A. Loudon a deputy president, in addition to J.A. Wolhoff. The president and the two deputy presidents form the executive committee.

The meeting further appointed M.D. Westermann a member of the board of management; Mr. Westermann is president of the board of Akzo Chemie.

At the annual meeting of stockholders on May 15, 1979, W.F.G.L. Starrenburg will resign from the supervisory council, having reached the age limit. J. de Vries and O. Wolff von Amerongen, whose terms of office are due to end, are eligible for re-appointment. A proposal will be submitted to stockholders to fix the council's membership at eleven.

Having reached the mandatory retirement age, H. Kramers will resign on May 31, 1979, as member of the board of management especially responsible for research and technological development. At the annual meeting, stockholders will be asked to appoint M.W. Geerlings to the board with effect from June 1, 1979.

Supervision

The supervisory council regularly obtained oral and written reports on the progress and results of the restructuring measures in some sectors of the Group.

It is gratifying that, due in part to the effect of these measures, it was possible to conclude 1978 with a net result that was positive, if still insufficient. We agree with the board of management that it is essential to continue energetically the efforts to improve earnings performance. We support the board in their endeavors to restrict the social consequences of the requisite measures as much as possible.

We herewith submit to you the financial statements for the financial year 1978, comprising the balance sheet and statement of income, with notes, inclusive of the consolidated statements of the Group, prepared by the board of management. These financial statements have been examined by Klynveld Kraayenhof & Co., *Registeraccountants.* Their report appears on page 54.

We approve these financial statements, in which the net income of Hfl 24.3 million has been reserved under article 38, paragraph 2, of the articles of association.

We propose that you also approve the financial statements, thus discharging the responsibility of the members of the board of management for their conduct of the business and of the members of the supervisory council for their supervision.

Arnhem, March 29, 1979

For the supervisory council,

J.R.M. van den Brink,
chairman

Financial highlights

on an historical-cost basis	1978	1977
in Hfl million		
sales	10,666	10,433
value added	3,905	3,620
operating income	421	240
net income (loss) before extraordinary items	49	(52)
net income (loss) after extraordinary items	24	(166)
funds from operations (see page 44)	659	539
property, plant and equipment		
capital expenditures	434	409
depreciation	486	494
stockholders' equity	2,231	2,325
per common share of Hfl 20 par value, in Hfl		
net income (loss) before extraordinary items	1.66	(1.75)
net income (loss) after extraordinary items	0.82	(5.63)
dividend	–	–
stockholders' equity	75.35	78.52

on a current-value basis (see pages 50 and 51)		
in Hfl million		
operating income	269	104
net income (loss) before extraordinary items	(31)	(126)
stockholders' equity	2,803	2,870
per common share of Hfl 20 par value, in Hfl		
net income (loss) before extraordinary items	(1.05)	(4.26)
stockholders' equity	94.69	96.95

number of employees	83,200	84,400

Report of the board of management

General review

Encouraging recovery: net income Hfl 24 million

We are gratified that after having suffered losses for three years in succession the Group was able to restore profitability in the year under review. Although, at Hfl 24 million, net income is modest, this does not diminish our satisfaction over the Group's achievement.

The increase in net income before extraordinary items from a net loss of Hfl 52 million in 1977 to a net profit of Hfl 49 million is primarily the result of cost-cutting measures, which demanded great efforts from our employees. One way in which the improvement is manifested is in a substantial reduction of losses on Enka's man-made textile fibers.

In the year under review, sales increased Hfl 233 million to Hfl 10,666 million. The smallness of the increase reflects the failure of our major markets to recover. In addition, the ongoing depreciation of a number of foreign currencies, notably the U.S. dollar, relative to the Dutch guilder, reduced sales of our foreign Group companies translated into Dutch guilders by approximately Hfl 0.5 billion.

Although there was only a slight increase in sales, our product mix improved through the streamlining or termination of unprofitable and less viable operations.

Financially, the prior years' balanced development was continued. Liquidity remained ample, with cash and marketable securities aggregating Hfl 598 million at year's end. New borrowings were restricted to Hfl 390 million, comparing with Hfl 557 million in repayments of borrowings.

A matter of great concern to us is the poor results achieved in the Netherlands, where our business continued to be unprofitable. This concern relates to the disappointing performance of several of our Dutch operations generally, but it especially stems from the persistent situation of grave losses in which Enka finds itself there: in 1978, Enka B.V. incurred a loss of Hfl 64 million.

Measures aimed at improvement of our earnings performance in the Netherlands therefore have a high priority.

In order to counteract as far as possible the effect of price rises on income, we have reserved the net income of Hfl 24 million under article 38, paragraph 2, of the articles of association. We have done so because calculation of income on the basis of current prices still produces a substantial net loss before extraordinary items of Hfl 31 million (1977: loss Hfl 126 million). We must therefore propose to omit the dividend.

Difficult market situation

In the early seventies, the expansion of capacity in the man-made fiber and chemical industries was based on forecasts of higher market growth than has actually occurred so far. This resulted in overcapacities, which caused under-utilization losses and downward pressure on prices.

The problem of excess capacity, which is particularly evident in the field of commodity products, is aggravated in a number of Western European countries by increased pressure of imports and diminished export possibilities.

The growing competition comes primarily from newly industrialized countries, which are able to produce at relatively low cost in new plants of advanced technological design. In addition, the dramatic fall of the U.S. dollar caused a further squeeze on margins.

The greater impediments to foreign trade were chiefly felt by our companies in the Netherlands and West Germany, which are in large measure dependent on exports. Still, these companies were able to maintain their aggregate exports, translated into guilders, at about the same level, viz. approximately Hfl 3.3 billion.

The nature of the problems in both the man-made fiber industry and the chemical industry, and the associated important consequences for the employment situation make it necessary to study and work out these

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Switchboard operators of the French pharmaceutical company R.E.T.I. handle peak hour traffic.

problems on a European level. Eventually, the current talks with the European authorities may well be productive for the man-made fiber industry.

In the meantime, however, a great part of the problems remain to be resolved through our own efforts. Our position is that the measures we think necessary to achieve such objectives as a strengthening of our line of products should be implemented as planned. Obviously, the benefits of these measures will be felt sooner and more strongly if market conditions should improve.

A recovery in the two industries is important because we will thereby be enabled to make more room for investment in new technology.

Man-made fibers

As causes of the structural overcapacity in this branch of industry, we already mentioned the overly optimistic consumption growth expectations of Western European producers and the upsurge in textile imports from low-wage countries. A factor which further aggravates the overcapacity problem is the ongoing capacity expansion in countries where, for this and other branches of industry, considerations of profitability are wholly subordinated to the interests of employment. Such a government policy, which relies on heavy subsidies to industry, bypasses the market mechanism. Without government interference this mechanism would result in a better balance between supply and demand, which is a prerequisite for a solution of the man-made fiber industry's problems in Western Europe.

In the year under review, the majority of European fiber producers had reached agreement on a 15% cut in production capacity for synthetic textile and carpet fibers, to be accomplished over a period of three years. The negotiations between the European Commission and the man-made fiber industry about an acceptable implementation of the envisaged capacity reductions have not yet been concluded.

Although the reductions in capacity will have a favorable effect on the market, it is unrealistic to expect that in a few years' time an adequate earnings level will automatically result for the Western European man-made fiber industry. Because of reduced export possibilities and imports of semi-manufactured and finished products from low-wage countries, textile fibers remain too depressed to permit adequate earnings. It should be observed, though, that the so-called balance of imports of textile products into the EEC countries was virtually unchanged from the previous year.

Especially in Western Europe, the main thrust in the integration of the strategies of Enka's man-made fiber companies was toward a strengthening of competitiveness.

A key factor in this respect is modernization of production equipment. The progressive advances in technology, which are essentially aimed at cost reduction, will call for higher capital expenditures in the years to come. Obviously, priority will be given to those products that will enable us to maintain or improve our position.

In the United States, where the man-made fiber industry has fewer problems than in Western Europe, Akzona will modernize American Enka's polyester textile filament production facilities.

Our technologically advanced plants elsewhere, mainly in Latin America, regularly make use of opportunities to share in the consumption growth of synthetic fibers in these countries, which is still relatively strong.

Chemical products and coatings

The problem of overcapacity in the Western European chemical industry for commodity products is less serious than for the man-made fiber industry because imported volumes of these products are not yet very significant. Even so, these imports exert substantial downward pressure on prices in a few cases.

As regards steps to prevent erosion of its competitive position, also in traditional export markets, the Western European industry has nothing to gain from protectionist measures, but it would certainly benefit by measures aimed at shielding it from unfair competition. Such measures should preferably be taken on the European level and, if possible, in consultation with the countries exporting to Western Europe. A case in point is the anti-dumping action over the importation of soda at very low prices, which was brought before the European authorities by C.E.F.I.C. (Conseil Européen des Fédérations de l'Industrie Chimique).

Mainly as a consequence of lower consumption growth and keener competition from new producer countries, the Western European chemical industry will not be able to avoid a process of reorientation – and even restructuring in some cases. This also applies to our chemical companies, principally operating in the Benelux and in West Germany, which are now passing through a difficult period.

The process of concentration on strong products and on leaner and more cost-efficient organization structures made good headway in the year under review. The results will become visible in 1979 and following years.

The confidence we have in our generally strong position as producers of chlor-alkali products – strong also from a geographical point of view – has prompted our decision of principle taken in early 1979 to build a new electrolysis plant, which will use a process based on membrane technology. This decision will only be implemented if acceptable solutions are found for a few problems to do with the project and provided that there is no fundamental change in our present views. The new plant is to have an annual capacity of 250,000 metric tons of chlorine.

It is of great importance for this project that we should be granted similar prices for electricity in the Netherlands as are customarily charged to plants of this kind in the rest of Western Europe.

The European coatings industry is not plagued by any major structural problems. Akzo Coatings' business is flourishing, which is also attributable to the advanced coating products now included in the product range, most of which were developed by our research.

Pharmaceuticals, consumer products and miscellaneous products

For a considerable time past, Akzo Pharma has been working to strengthen its position, both through new products generated by its own research, and through acquisition of pharmaceutical companies whose specialty lines are capable of further development within the division.

The need for further reinforcement in the years to come is underscored by several factors, including the effects of government measures in the field of health care, which are now beginning to be felt.

Akzo Consumenten Produkten, which concentrates on a broadening of its geographical base, has in recent years registered steady (if modest) progress in this direction through acquisitions and cooperation with third parties.

With regard to miscellaneous products, the products of Barmag and Brand-Rex, and the dialysis membranes of Enka have made a major contribution to the healthy growth in this sector.

Long-term prospects

Low economic growth expectations for the majority of countries that are important to us, and increasing international competition, force us to speed up concentration on products that will enable us to maintain a strong technological and commercial position. In line with this policy, our research focuses on the development of new products, new process technology and new applications for existing products. Product activities that have insufficient viability within the Group will be phased out or sold to third parties.

By the late eighties, this strategy is expected to result in a healthier and more balanced line of products for the Akzo Group, with a larger share for products involving specific technological or marketing know-how. We do not intend to make any major changes in the geographical distribution of our operations.

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Technician of Enka tecnica, of Oberbruch (West Germany), machines orifices in spinneret of the type used in the production of polyester staple in Enka plants.

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Process operator tests quality of caustic soda in the cell room of Akzo Zout Chemie's electrolysis plant at Hengelo (the Netherlands).

Employees

We are grateful to our employees for the manner in which they performed their duties in this past year.

To many of them 1978 was another difficult year owing to the burden placed on them by poor or still insufficient results. Contrasting with satisfaction over the Group's success in achieving positive, though slight, net results after three years of losses, there is the painful fact that the number of jobs provided by our organization diminished. Further job losses will be inevitable in the next few years, due to the factors outlined above. An additional factor is the sober reality that the high cost level in such countries as the Netherlands and West Germany forces us to take cost-cutting measures, also in healthy product groups. Only then will we be able to cope in our markets with competition from producers in other countries.

We remain committed to socially responsible ways of implementing such measures, which take due account of the rights and needs of the persons concerned.

Outlook

Factors beyond our control render it hazardous to make concrete pronouncements on what 1979 may bring.

Thus, much depends on the outcome of the talks with the European authorities on a reduction of synthetic fiber production capacities. In light of such factors as our Dutch and West German companies' strong dependence on exports, changes in exchange rates, particularly of the U.S. dollar, may also affect the Group's performance in ways which cannot now be foreseen. Lastly, an upsurge in prices of petrochemical raw materials occurred toward year's end, the effect of which on earnings is highly conjectural.

We believe that further cost-cutting measures in our organization, together with the efforts to improve our product mix, will again add to earnings.

Barring unforeseen setbacks, we expect 1979 to bring further advances in Group performance. The dimensions of the progress will be relatively modest, however.

Akzona Inc.

This year's special section is devoted to the activities of Akzona Inc. in the United States and to the position this company, with its broad range of products, has in the North American market (page 36 and following).

Results of operations

8 **Sales, value added and operating income**

The table below shows that operating income of the consolidated companies was significantly better than in 1977.

in Hfl million and in %		1978		1977
sales	10,666	100	10,433	100
raw materials, supplies, energy, and purchased services	(6,364)	(59.7)	(6,422)	(61.6)
depreciation	(486)	(4.6)	(494)	(4.7)
value added	3,816	35.7	3,517	33.7
salaries, wages and social charges	(3,395)	(31.8)	(3,277)	(31.4)
operating income	421	3.9	240	2.3

Sales were up only 2% in the year under review. This was the net result of positive effects due to higher shipments (4%) and higher prices (2%) and to consolidation of a few companies (1%), and a negative effect of 5% due to translation into guilders, at lower rates of exchange, of sales by Group companies outside the Netherlands.

The aggregate cost of raw materials, supplies, energy, and purchased services was down slightly. Prices of the raw materials for man-made fibers, chemical products and coatings were on average below the 1977 level. In contrast, prices for energy were higher again.

The continued decrease in the amount of depreciation is associated with the low level of capital expenditures in the last few years.

Value added increased both in absolute terms and in proportion to sales.

Salaries, wages and social charges increased only 3.6%, reflecting the reduction in the number of employees. Expressed as a percentage of sales, this item was nevertheless somewhat higher than for 1977.

Operating income for 1978 includes isolated gains, mainly relating to the construction of manufacturing facilities for third parties and to the sale of property. Against this, there were exchange losses on borrowings in foreign currencies.

Operating income, although greatly improved, remains manifestly too low in proportion to sales.

The following breakdown by quarter of sales and operating income for the last two years shows that in each quarter of 1978 operating income was higher than in the corresponding quarter of 1977, both in absolute terms and as a percentage of sales. The gains in the second six months of 1978 are especially noteworthy.

	sales		operating income		operating income in % of sales	
in Hfl million	1978	1977	1978	1977	1978	1977
first quarter	2,649	2,683	90	85	3.4	3.2
second quarter	2,671	2,582	102	77	3.8	3.0
third quarter	2,537	2,467	72	13	2.8	0.5
fourth quarter	2,809	2,701	157	65	5.6	2.4
total	10,666	10,433	421	240	3.9	2.3

Net income

Higher operating income for 1978 resulted in a small positive net result. Compared with 1977, the balance of extraordinary losses and gains was significantly better.

in Hfl million	1978	1977
operating income	421	240
interest	(248)	(245)
	173	(5)
taxes on operating income less interest	(113)	(65)
equity in earnings of non-consolidated companies	28	34
Group income (loss) before extraordinary items	88	(36)
extraordinary items	(25)	(122)
minority interest	(39)	(8)
net income (loss)	24	(166)

Interest expense remained on about the same level as in 1977.

In appraising the amount for taxes in relation to income (loss) before taxes, the reader should realize that the tax base is composed of earnings subject to taxes, and of losses against which no tax savings can be offset; in 1978, such losses occurred for the most part in the Netherlands.

Details on the Hfl 6 million decrease in equity in earnings of non-consolidated companies to Hfl 28 million are given on page 11.

The extraordinary items in 1978 primarily related to additions to provisions for rationalization of activities and for additional write-downs of property, plant and equipment.

If the results are computed on the basis of the current value of property, plant and equipment, of inventories, and of investments in non-consolidated companies (see pages 50 and 51), the year still shows a net loss of Hfl 31 million before extraordinary items. This compares with a 1977 current-value loss figure of Hfl 126 million.

Sales and operating income by product group

To provide a better insight into operating income, segment information has been extended from three to six product groups.

The development by product group of sales and operating income was as follows:

in Hfl million and in %	sales 1978		sales 1977		operating income 1978	operating income 1977	operating income in % of sales 1978	operating income in % of sales 1977
man-made fibers	3,567	33	3,598	34	10	(88)	0.3	(2.4)
chemical products	2,916	27	2,998	29	122	110	4.2	3.7
coatings	1,049	10	975	9	64	45	6.1	4.6
pharmaceuticals	1,211	11	1,099	10	140	133	11.6	12.1
consumer products	696	6	611	6	31	16	4.5	2.6
miscellaneous products*	1,349	13	1,274	12	107	80	7.9	6.3
total	10,788	100	10,555	100	474	296		
intra-Group deliveries and non-allocated costs	(122)		(122)		(53)	(56)		
total	10,666		10,433		421	240	3.9	2.3

* including machinery, wire and cable products, dialysis membranes, plastics, leather, non-wovens

The terms and conditions for intra-Group deliveries are negotiated at arm's length and therefore are, in principle, identical with the ones used in transactions with third parties. International intra-Group deliveries and international deliveries within a single product group are made in accordance with standard procedures that take due account of tax, currency and pricing regulations in force in the countries concerned.

Man-made fibers

Volume sales of *man-made fibers* were up an average 5%. On the whole, however, prices for man-made fibers produced by our Western European fiber companies were even lower than in 1977. Prices for certain of American Enka's fiber types rallied.

Guilder sales failed to reflect the increase in shipments, which is due in particular to the translation of American Enka's sales at significantly lower rates of exchange for the U.S. dollar.

In the EEC, there was a substantial improvement in operating income, attributable to the beneficial effect of steps designed to improve product range and cost structure. Further contributing factors were lower prices of, especially, the petrochemical raw materials, and a number of isolated gains. Outside the EEC, improved market conditions were chief among the factors causing an increase in operating income.

Sales of *man-made fibers for textile uses and carpets* were up from Hfl 2,590 million in 1977 to Hfl 2,633 million in 1978; operations in this sector remained unprofitable, but losses were considerably lower than in 1977.

Sales of *man-made fibers for industrial uses* fell from Hfl 1,008 million in 1977 to Hfl 934 million in 1978. Income in this sector suffered from the weakening position of rayon tire yarns, which lost further ground to steel cord.

Chemical products

Especially in the first half of 1978, our commodity chemicals were under constant pressure from stagnating shipments and fiercer international competition, which intensified the erosion of prices in the Western European markets.

Sales of *salt and heavy chemicals* decreased from Hfl 1,854 million in 1977 to Hfl 1,794 million in 1978. Price competition adversely affected earnings in this sector. By the end of the year prices for certain commodity chemicals, including *vinyl chloride*, stabilized.

Weather conditions in the United States and in the Netherlands were conducive to gratifying levels of *deicing salt* shipments.

Sales of *specialty chemicals* declined from Hfl 1,144 million to Hfl 1,122 million in 1978. Among Akzo Chemie's products, *organic chemicals and catalysts* experienced a difficult year. For catalysts, in particular, business results were depressed by the low rates of exchange of the U.S. dollar and of sterling. *Process chemicals and additives,* on the other hand, registered a satisfactory development. Earnings for Armak were depressed by a strike of six months' duration in one of its plants.

Coatings

The product group *coatings* had another good year, especially because of the satisfactory growth in shipments of *automotive paints and refinishes.*

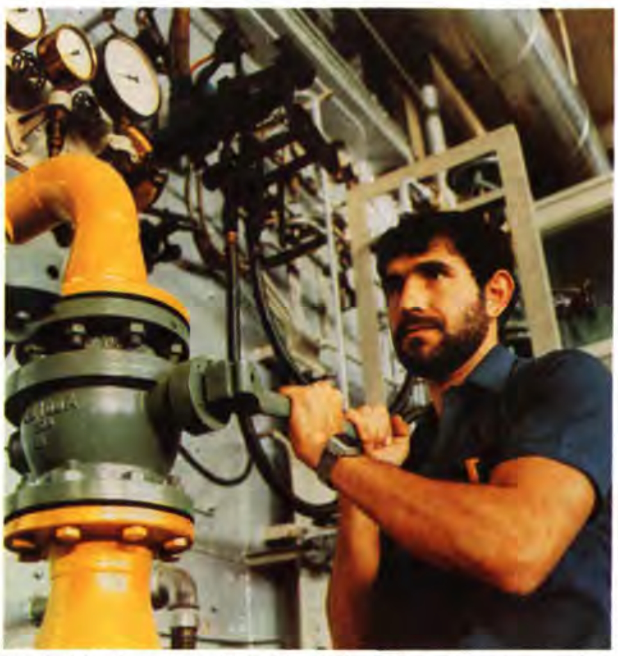
All Akzo Coatings companies contributed to the rise in operating income.

Pharmaceuticals

The stagnancy in our sales of *pharmaceuticals* which occurred in 1977 did not continue in 1978. Sales and operating income reached higher levels than in 1977, due in part to the acquisition in 1977 of a majority interest in the successful French pharmaceutical company R.E.T.I. The earnings performance of Diosynth, a producer of *pharmaceutical raw materials,* was affected by heightened international price competition; here, too, the depreciation of the U.S. dollar against the guilder was a major adverse factor.

Consumer products

Consumer products registered a satisfactory performance for the year, albeit that earnings in the *foodstuffs* sector in the Netherlands were disappointing. Sales and income for 1978 include the figures of the thriving Mayolande company (food specialties) in France, which is now consolidated after an increase in ownership from 50% to 90%.



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Technician in power plant of La Seda de Barcelona opens valve in the oil supply line to the boiler house.

Miscellaneous products

The principal contribution to the rise in sales and operating income for miscellaneous products was made by Brand-Rex's *wire, cable and electronic/electrical products* (Akzona) and Ënka's *dialysis membranes.*

Sales and operating income by region

The table on page 11 presents a breakdown of sales and operating income by region for the years 1978 and 1977.

Europe

At 4% higher sales, operating income was significantly better than in 1977. The principal contribution to the Hfl 155 million rise in operating income to Hfl 236 million came from the companies of the Enka group.

In the Netherlands, results remained disappointing, particularly in the fiber sector. In West Germany, nearly all product groups turned in better performances.

In the other EEC countries, with France in the lead, sales and income reached higher levels, but British Enkalon (Enka) struggled through another difficult year with unsatisfactory results. In Spain, results of La Seda de Barcelona (Enka) were up substantially, restoring the profitability of operations.

North America

The U.S. business environment was better than in 1977 for most industries, including the man-made fiber and chemical industries.

Akzona dollar sales gained 7%, while operating income was up as well.

Results of American Enka Company improved; all major product lines were profitable in 1978.

International Salt and Brand-Rex chalked up significantly higher earnings, while Organon Inc. continued its modest progress. For Armak and Armira, 1978 was a disappointing year.

Rest of the world

An appraisal of operating income as a percentage of sales (18.8%) should make due allowance for the fact that operating income is to be reduced by high financing

in Hfl million and in %	sales* 1978		sales* 1977		operating income 1978	operating income 1977	operating income in % of sales 1978	operating income in % of sales 1977
EEC countries	7,609	72	7,298	70	196	83	2.6	1.1
rest of Europe	573	5	561	5	40	(2)	7.0	(0.4)
total Europe	8,182	77	7,859	75	236	81	2.9	1.0
North America	2,027	19	2,133	21	99	87	4.9	4.1
rest of the world	457	4	441	4	86	72	18.8	16.3
total	10,666	100	10,433	100	421	240	3.9	2.3

* by area of origin

charges as a result of strong inflation.

Brazil has become the principal Akzo country in the "rest of the world". Most divisions are represented here with subsidiaries. The activities of the holding company Akzo Indústria e Comércio Ltda are of a coordinating nature. The company also renders services to these subsidiaries.

Translated into guilders, 1978 sales by our consolidated companies in Brazil aggregated some Hfl 300 million. Great attention is devoted to the exploitation of expansion opportunities, which are relatively favorable.

Non-consolidated companies

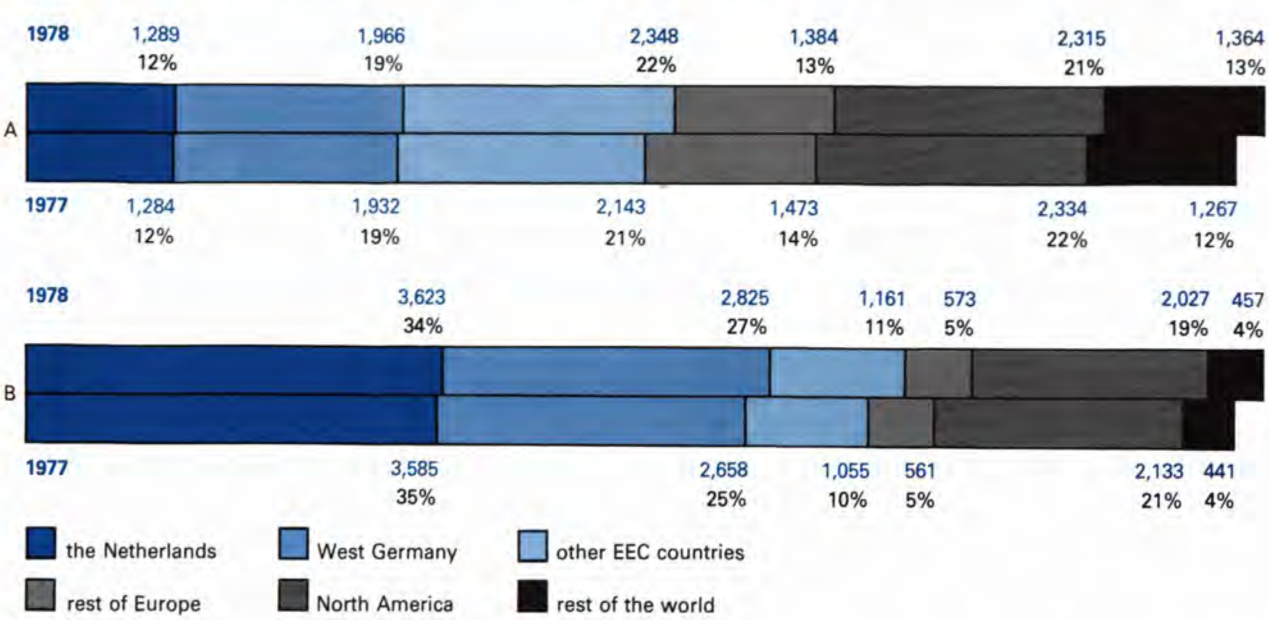
Equity in earnings of non-consolidated companies (participation 50% or less) fell by Hfl 6 million to Hfl 28 million. Against overall improvements in results in the sector of man-made fibers and for Methanol Chemie Nederland, there were declines for the other companies in the chemical sector. Stikstofderivaten N.V. (Belgium) closed with a loss this past year in which the new nitrogen derivatives plant went on stream.

The table below illustrates the geographical distribution of sales and invested capital of the Group's non-consolidated companies.The number of employees is given on page 15.

in Hfl million	sales* 1978	sales* 1977	invested capital** 1978	invested capital** 1977
EEC countries	880	840	680	570
rest of Europe	200	210	130	140
total Europe	1,080	1,050	810	710
North America	50	50	10	10
rest of the world	700	690	920	860
total	1,830	1,790	1,740	1,580

* by area of origin
** at December 31

Sales of consolidated companies by destination (A) and by origin (B), in Hfl million and in %



1978 sales of these companies break down into 41% for man-made fibers, 47% for chemical products and coatings, and 12% for pharmaceuticals, consumer products and miscellaneous products.

Shares in value added

Group value added, which represents the value added by consolidated companies plus equity in earnings of non-consolidated companies and some other items of income, was Hfl 3,905 million and was distributed as follows among employees, providers of capital, and governments:

in Hfl million and in %		1978			1977	
employees		3,395	87.0		3,277	90.5
providers of loans		294	7.5		302	8.3
governments		128	3.3		77	2.1
stockholders						
Akzo N.V. stockholders	–			–		
minority stockholders	12			20		
		12	0.3		20	0.6
		3,829	98.1		3,676	101.5
added to (deducted from) Group equity		76	1.9		(56)	(1.5)
total		3,905	100		3,620	100

Operator in International Salt (Akzona) mine drives 20-ton capacity diesel-engined shuttle car carrying rock salt from the faces to the crushers.

Although value added was up 8% over the 1977 level, it still was inadequate. Consequently, as much as 98.1% of value added went toward coverage of personnel costs, interest charges, taxes, and dividends to minority stockholders of Group companies. The remainder was added to Group equity.

As in previous years, extraordinary items were left out of account in the calculation of value added because of their unusual nature.

Financing and capital expenditures

Financing equilibrium

In the year under review, the financing equilibrium continued. Funds from operations (Hfl 659 million) were in excess of capital expenditures* (Hfl 512 million). Repayments of borrowings (Hfl 557 million), including two Swiss franc borrowings redeemed before maturity, did not have to be met in full through new borrowings (Hfl 390 million).

The table below presents a survey of Group financing in 1978 and 1977; for details see page 44.

in Hfl million	1978	1977
working capital at January 1	2,228	2,327
funds from operations	659	539
capital expenditures	(512)	(397)
borrowings	390	289
repayment of borrowings	(557)	(408)
other changes	(100)	(122)
working capital at December 31	2,108	2,228

Capital expenditures

In 1978, capital expenditures aggregated Hfl 512 million. The total includes a credit item of Hfl 16 million relating to disposal of participations (1977: Hfl 60 million).

Expenditures for acquisitions amounted to Hfl 90 million (1977: Hfl 60 million).

Expenditures for property, plant and equipment in 1978 totaled Hfl 434 million, or some 6% more than in 1977 when they were Hfl 409 million. The breakdown of these expenditures by product group and region does not materially differ from that for 1977.

in Hfl million and in %	Expenditures for property, plant and equipment 1978		1977	
product groups				
man-made fibers	125	29	122	30
chemical products and coatings	197	45	184	45
pharmaceuticals, consumer products and miscellaneous products	112	26	103	25
total	434	100	409	100

	1978		1977	
regions				
EEC countries	312	72	291	71
rest of Europe	11	3	11	3
total Europe	323	75	302	74
North America	93	21	87	21
rest of the world	18	4	20	5
total	434	100	409	100

The caution generally exercised over additions to property, plant and equipment has particularly been in evidence in the sector of man-made fibers. In 1978 and in 1977, the expenditures for property, plant and equipment for this product group barely exceeded half of the amount for depreciation.

Borrowings

Funds for repayment of borrowings were obtained through new borrowings in the amount of Hfl 390 million, including the following ones contracted by Akzo N.V.:

- a DM 50 million 6% private borrowing, period to maturity six years;
- a Sfr 40 million private borrowing, in four separate tranches of Sfr 10 million, repayable in annual installments from 1979 through 1982, with interest rates ranging from 2⅞% (1st tranche) to 4⅛% (4th tranche). This borrowing is associated with the redemption before maturity of the Sfr 50 million 5½% debentures;
- bank borrowings in various currencies, charged against our medium-term credit facilities, in the aggregate amount (translated) of approximately Hfl 100 million.

The average interest rate of borrowings outstanding at December 31, 1978, was 8.2% (1977: 7.9%).

Working capital; liquidity

At December 31, 1978, working capital was 5% down from December 31, 1977. As a percentage of sales, it decreased further to 19.8% at December 31, 1978. Inventories and trade receivables together amounted to 35.5% of sales at December 31, 1978 (December 31, 1977: 35.3%).

Cash and marketable securities were up Hfl 18 million to Hfl 598 million at year's end. The total amount of medium-term credit facilities arranged but not yet utilized was Hfl 0.9 billion at December 31, 1978 (December 31, 1977: Hfl 0.8 billion).

* as used in this section, capital expenditures denotes expenditures for property, plant and equipment, for other non-current assets and for acquisitions, less disposal of participations

Diversification of financing

In the year under review, we intensified efforts to achieve a more balanced package of geographically diversified financing arrangements. The endeavors to further increase the share of foreign finance – already stimulated by the limited capacity of the Dutch capital market – are consistent with our policy to reduce exchange risks by encouraging our foreign Group companies to raise local funds whenever this is feasible.

Foreign exchange

Exchange risks on short-term commercial and financial positions are assessed by balancing opposite positions in each currency. To the extent that coverage of the risk in any given currency is considered necessary, it is chiefly effected by means of forward transactions.

For long-term borrowings in foreign currencies we registered a loss in 1978 of, on balance, Hfl 27 million particularly on borrowings in Swiss francs. Redemptions reduced these borrowings, which were translated into guilders at the 1978 year-end rate of Sfr 1 = Hfl 1.22, from Sfr 170 million to Sfr 100 million at December 31, 1978.

The exchange loss on borrowings still outstanding obviously is not equivalent to a cash loss. It would only become one if repayments for future years were to be made at the rates of exchange in force at the end of 1978.

Due to the continued depreciation of most currencies relative to the Dutch guilder, the translation into guilders of stockholders' equities of foreign Group companies resulted in an exchange loss of Hfl 194 million, which was deducted from Group equity.

Composition and financing of assets

in Hfl million and in %	Dec. 31, 1978		Dec. 31, 1977	
non-current assets	3,850	46	4,046	48
current assets	4,540	54	4,442	52
total	8,390	100	8,488	100
financed from:				
Group equity	2,628	31	2,739	32
long-term liabilities	3,330	40	3,535	42
current liabilities	2,432	29	2,214	26
total	8,390	100	8,488	100
Group equity : liabilities		0.46		0.48
Group equity : non-current assets		0.68		0.68
current assets : current liabilities		1.87		2.01

Group equity decreased Hfl 111 million as a result of the aforementioned exchange loss.

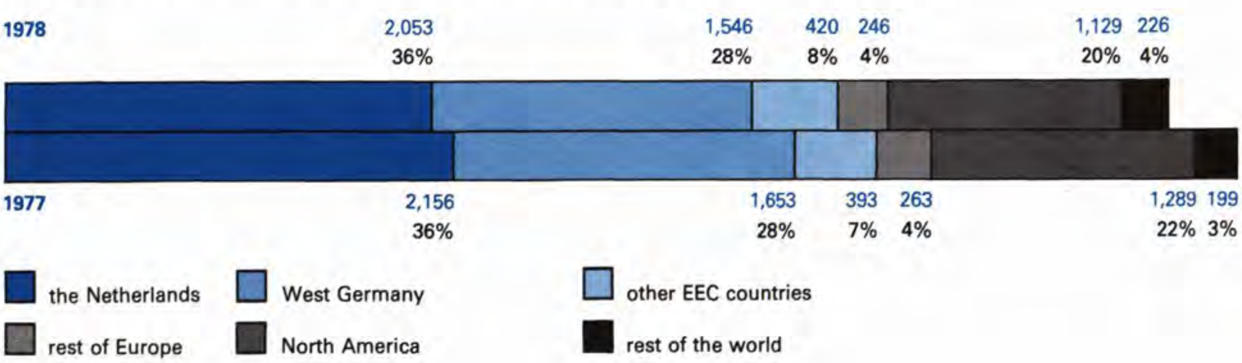
Group equity recomputed on the basis of the current value of property, plant and equipment and of non-consolidated companies declined Hfl 79 million to Hfl 3,290 million at December 31, 1978 (see pages 50 and 51).

The ratio of Group equity to liabilities was 0.46 at December 31, 1978, and hence somewhat lower than the ratio at December 31, 1977 (0.48). On a current-value basis it was 0.52 (at December 31, 1977: 0.54).

Insurance

There were no material changes in the nature and scope of our insurance arrangements. The insured value of property, plant and equipment is almost entirely based on replacement value, and was approximately Hfl 17 billion at December 31, 1978 (at December 31, 1977: approximately Hfl 16 billion).

Geographical distribution of invested capital of consolidated companies, in Hfl million and in %



Personnel policy and social developments

Employment

The reduction in the number of jobs provided by Akzo continued in the year under review, if at a considerably lower rate than in previous years.

When it began in 1975, this decline was largely attributable to the problems associated with man-made fibers in Western Europe. But for some time now, the pressure on employment has been intensified by the problems confronting both of our chemical divisions.

On balance, the number of employees of the consolidated Group companies was down 1,200 to 83,200 at year's end. The principal reduction (1,600) was again in the Netherlands and West Germany, with Enka companies accounting for the greater part.

A reduction by 400 in all other countries was more than offset by the total workforce (800) of three companies first consolidated in 1978.

Employees of consolidated companies, in numbers and in %	Dec. 31, 1978		Dec. 31, 1977	
the Netherlands	24,300	29	25,400	30
West Germany	21,300	26	21,800	26
other EEC countries	10,200	12	10,000	12
total EEC countries	55,800	67	57,200	68
rest of Europe	6,000	7	6,300	7
total Europe	61,800	74	63,500	75
North America	15,600	19	15,300	18
rest of the world	5,800	7	5,600	7
total	83,200	100	84,400	100

The number of employees of the non-consolidated companies was up 500 to 15,900 at year's end. Against an increase of 1,200 in the context of expanding operations in Brazil, Nigeria, India and elsewhere, there was a decrease of 700 explained by the fact that a few companies acquired consolidated status.

Employees of non-consolidated companies, in numbers and in %	Dec. 31, 1978		Dec. 31, 1977	
EEC countries	3,800	24	4,100	27
rest of Europe	800	5	800	5
total Europe	4,600	29	4,900	32
North America	100	1	100	1
rest of the world	11,200	70	10,400	67
total	15,900	100	15,400	100

The number of employees of our consolidated and non-consolidated companies together was down 700 to 99,100 at December 31, 1978.

The loss of jobs in the Netherlands and West Germany was accompanied with the minimum number of dismissals, thanks to the efforts of many. In line with this, we expect that upon closure of the polyamide textile filament plant at Wuppertal-Barmen the great majority of its more than 700 workers will have been relocated to the fast-expanding dialysis membrane operation.

We feel that it is due to these and similar efforts and to regular consultation with employee representatives that optimum solutions were attained in the year under review, and that there was no significant labor unrest, except for a single protracted strike at one of the plants of Armak (Akzona).

The nature of the job losses has changed gradually. The share of the non-production (or overhead) sectors increased. It is our policy that this shift, which springs from adjustment of the overall personnel strength to a lower level of manufacturing activity, should continue in the next few years. In the overhead sector, too, we have hitherto been successful in keeping dismissals within tolerable limits.

Another means increasingly adopted to moderate the pressure of overheads is to make available to third parties our expertise in engineering and other areas. Akzo Engineering has been doing so for several years.

Technician of Organon Inc. (Akzona) performs assay on Pavulon®, *a neuromuscular blocking agent for use by anesthesiologists in major surgery.*

In 1978, our Organization Department was incorporated as a self-contained business entity, Rijnconsult B.V. By year's end a substantial part of its capacity was already being utilized toward work for third parties.

Turning to the outlook for employment in our Group, we see no cause for optimism insofar as Western Europe – and particularly the Netherlands – is concerned. Both market and cost developments will force us to carry on the slimming process in the man-made fiber and chemical products sectors for several years to come.

Although this continued slimming will not be nearly so drastic as it has been, it does perpetuate the uncertainty for some of our employees. We are aware that this situation taxes the endurance of our employees, all previous efforts on our part to minimize dismissals notwithstanding. However, in light of the many jobs we expect to save as a result of our decisions we consider our policy in this matter justified.

Age structure of our personnel

One consequence of the diminished growth in industry is what may be described as the "graying" of the workforce. Its chief characteristics are a rise in average age and the emergence of a lopsided age structure, caused by a decrease in the number of young persons and a relative increase in the number of older persons.

This phenomenon is chiefly in evidence in Group sectors which over a prolonged period could only take on the bare minimum of new employees. This has undesirable effects, both in terms of the profitability of the Company and as regards the well-being, motivation and creativity of its employees. Thus, wage costs and sickness absenteeism in a graying company are usually higher than elsewhere, while channels of promotion and relocation are silting up as a result of the lessened mobility of middle-aged employees. This may have adverse effects on the motivation of those who have not yet realized their full potential, and particularly of those whose chances of pursuing their career elsewhere are virtually canceled by their age.

These situations place an additional burden on the managers concerned but also constitute a challenge, which they have to meet with appropriate policies. It is important that people should be helped to understand the rationale of curtailments, particularly where they coincide with recruitment, albeit small-scale, of younger personnel.

The prevalence of the graying tendency is among the reasons why we attach great importance to realization of desires, increasingly expressed in the Netherlands, for superannuation arrangements which would make it easier, especially for older people, to change jobs without loss of entitlement to pension benefits.

Social developments

The development of employment within Akzo outlined above is not an isolated phenomenon. Almost

Storeman of the Société Tunésienne de Peintures Astral in Tunis inspects stocks.

»

Training officer of Stikstofderivaten N.V. of Mons (Belgium) uses demonstration model to instruct one of the operators hired in 1978 to man the new plant.

everywhere in the industrialized world the number of jobs offered by industry is falling. The unemployment this creates is now a major social problem in all countries concerned. From its previous occurrence in agriculture, the causes of the process are known. Still, the principal political and economic groups in society – employer and employee associations, political parties, and authorities – differ in their assessment of the impact and interrelation of these causes, and consequently propose different (sometimes conflicting) solutions.

However, all are agreed that to find a solution to this basically structural problem is beyond the capacities of the individual company in that it requires constructive consultation and cooperation on the national and international levels between all groups concerned.

At the entrepreneurial level it will only be possible to strive for a gradual adjustment to the changing environment: a process the success of which depends on the room authorities and unions are prepared to allow.

We therefore take this opportunity to appeal to all governments and organizations to afford industry this room (which is also vital for economic reasons) and thereby lay the groundwork for effective cooperation toward the solution of the employment problem.

The foregoing paragraphs on the complex and critical social problems of employment sketch part of the background of the development of worker participation, which has gathered momentum over the last few years. In 1978, statutory measures were introduced, or suggestions put forward for discussion with regard to this issue, which closely concern local Group companies. Thus, Enka AG saw the formation, in pursuance of the *Mitbestimmungsgesetz* (Co-determination Law), of a supervisory council in which half the number of seats are held by worker representatives. The period of the council's existence is still too brief for us to be able to assess its performance. In the United Kingdom, the proposals are to the effect that employees be given a say in economic decisions, while for large companies (with more than 2,000 employees) participation of worker representatives in a supervisory body is envisaged. Similar steps are contemplated in France. Lastly, in the Netherlands amendments of the Works Councils Act are being finalized which will give these councils greater independence vis-à-vis corporate management and significantly extend their powers.

With due respect for these developments, we feel that they may also involve such risks as delays in the decision-making process and a tendency to favor short-term over long-term interests. However, we trust that the bodies representing our employees will be aware of these risks and that they will let themselves be guided by what is necessary to safeguard the continuity of the business. This will enable us to continue directing the Company with resolution and purpose.

Research and engineering

Research and development

The continuing rationalization measures in the Group's R&D organizations resulted in a further reduction in the number of employees by 40 to 5,350 at year's end. In the sector of textile filament and staple, the decrease exceeded the net reduction. There were increases at Akzona and also in Enka's non-fiber sector.

Costs rose slightly to Hfl 440 million; as a percentage of sales they remained on the level of 1977, at 4.1%.

For the years ahead also, we expect only a modest increase in research expenditures.

	1978	1977	1976	1975	1974
costs, in Hfl million	440	430	410	390	360
ditto, in % of sales	4.1	4.1	3.8	4.1	3.4
number of employees	5,350	5,390	5,550	5,950	6,025

The coordination of the activities undertaken by the decentralized research units was further strengthened in the year under review. Especially in the field of synthetic fibers this has had positive results.

In certain new areas of research, cooperation between members of the Group was formalized. This notably applies to the relation with Akzona, which is covered by a research agreement, concluded in 1978, regulating the exchange of new, interesting knowledge in all fields in which the Group is active.

Research technician of American Enka (Akzona) prepares samples for analysis by means of an X-ray fluorescence spectrometer.

A policy-making group, in which divisional research and the central research organization (Corporate Research) are represented by their directors, has established a policy fostering the long-term objective of the Group, viz. the realization of gradual but definite shifts in the product mix. It is consistent with this policy that we should maintain the quality and effectiveness of our innovative research capability.

Furthermore, our Corporate Research organization is expected to make a fundamental contribution toward the achievement of this objective, in keeping with its strategic task of providing the Group with options which in the long run will create new business opportunities.

Added to this strategic task, Corporate Research renders support to the divisions in the form of expertise, using sophisticated, often costly, equipment. In the key areas of chemical and structural analysis, materials science, instrumentation, automation, data processing, and chemical engineering, the level of our scientific skills is high. Combination of different analytical techniques enables us to make a thorough study of phenomena and substances, and so to make an essential contribution to solving the numerous problems encountered in our existing operations. This has sometimes prompted new investigations of strategic importance, while occasionally the refined methods of analysis have resulted in improved or new process technology.

It is vital that the Corporate Research function should match the size and nature of its activities to the needs of the Group.

A number of products and processes initiated by Corporate Research in the seven years of its existence are now being actively developed on a divisional level.

As is customary, successful developments generated by our R&D centers are mentioned in the reports of the individual product groups.

Engineering

In 1978, five projects relating to the activities of Akzo Zout Chemie (4) and Akzo Chemie (1) were completed: the second methanol plant and the ethylene diamine plant at Delfzijl, the extension of the VC monomer plant in Rotterdam, the monochloroacetic acid plant in Omi (Japan), and the nitrogen derivatives plant at Mons (Belgium).

Under construction were the nylon tire yarn and fabric plant in Brazil (COBAFI) and the polyester filament plant in Nigeria (Nichemtex). In early 1979, construction was begun on a dicumyl peroxide plant in Belgium (Amdic).

Projects completed for third parties and involving Group know-how mainly related to man-made fibers

(Czechoslovakia) and hydrochloric acid regeneration (West Germany). The soda ash project in Brazil is still in progress.

With the number of capital investment projects in the Group declining, consulting activities were given greater emphasis. This also involved work for third parties. In line with our policy we may also engineer and supervise construction of new plant facilities for third parties.

Safety and the environment

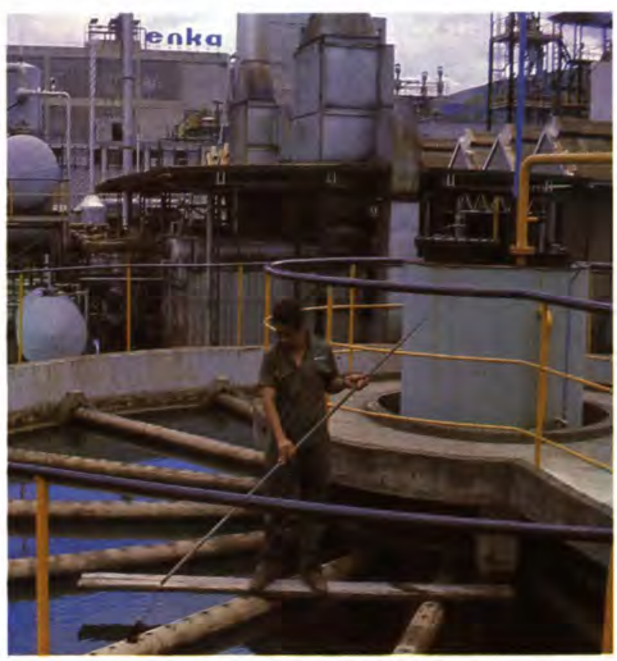
Environmental and safety matters in a company demand close attention from management and personnel, given the important social implications of these issues. The more than 350 Group employees who devote a significant portion of their time to such matters have long come to see this as a self-evident truth.

The Company also attaches great importance to full recognition of safety and environmental protection as major, and sometimes decisive, factors in the decision-making process relative to existing activities, such as manufacturing, marketing, and research.

The Group has now practically caught up with regulations in regard to environmental protection in major Akzo countries such as the Netherlands, West Germany and the United States. We do not, of course, expect environmental legislation to come to a standstill. But we do hope that, before action is taken, including a tightening of existing standards, law-makers will carefully balance the weight of the environmental gains against the sometimes exorbitant cost the community will ultimately have to bear.

In the important field of safety we already voiced concern over an approach to the problems that makes too little allowance for past achievements in the formulation of, and compliance with, safety regulations. In our consultations with the authorities we stress the practical side of the problems, illustrating our stance from first-hand experience.

Akzo Engineering project leader discusses completion of an expansion of the vinyl chloride monomer plant of Akzo Zout Chemie in Rotterdam.



Cleaner performs maintenance work on waste-water purification plant at Enka de Colombia's fiber manufacturing facility at Medellín.

Man-made fibers

in Hfl million	1978	1977
sales: textile uses	2,633	2,590
industrial uses	934	1,008
total	3,567	3,598
operating income (loss)	10	(88)
operating income (loss), as percentage of sales	0.3	(2.4)

This product group comprises filament yarns and staple fibers of polyamide, polyester, acrylics (staple), and cellulose; it further includes steel cord.
Typical textile uses are: apparel, carpeting and other home furnishings, and household textiles.
Typical industrial uses are: auto tires, conveyor belts, safety belts, fishing nets, ropes, and building and construction materials.

In last year's annual report we gave a breakdown by end-use category of man-made fiber consumption in Western Europe and in the United States (1976). It was shown that, at 52% and 43%, respectively, apparel was the main use in both geographical areas, although it no longer holds such a dominant position as in previous years.

The table below shows that the penetration of synthetic filament and staple as a raw material for the various end-uses has progressed further both in the EEC countries and in the United States.

share of synthetics, as a percentage	EEC countries*		United States	
	1977	1972	1977	1972
apparel	48	44	59	48
carpets	76	60	99	88
other home furnishings and household textiles	31	25	38	23
tires and other industrial uses	33	22	56	45
total	46	39	62	50

* not including Denmark and the Irish Republic
Sources: C.I.R.F.S. and Textile Organon

The penetration of synthetic fibers, such as polyamide (nylon), polyester and acrylics, has been at the expense of cotton and wool, but also cellulose. This continuing trend is in large measure based on the efforts made by research, which has regularly developed fibers having the requisite specific properties, and also made a major contribution to a comparatively favorable cost level.

As far as tires and other industrial uses are concerned, there is a difference in trend for tire reinforcing materials between the EEC countries and the United States. In the EEC countries, viscose yarns have long played a dominant role, whereas in the United States there has always been a greater emphasis on synthetics. The rise to prominence of steel cord, which material is not included in the figures given above, started in Western Europe and has subsequently eroded there the position of both viscose and polyamide industrial yarns. In the United States the penetration of steel cord did not gain significance until recently.

Western Europe

Market situation

In the year under review, the market situation for man-made fibers for textile end-uses, including carpets, was still far from bright. Substantial overcapacities prevented prices from rallying back to a level at which costs may be recouped. The market picture for industrial yarns was less favorable than in 1977, due in part to growing competition from producers outside Western Europe.

Production volumes of the Western European *textile industry* showed a further decline in 1978 (approximately 4%). In contrast, mill consumption of man-made fibers rose by about 5% (1977: 6% decrease). This seemingly contradictory rise in mill consumption for 1978 was caused by a number of factors. In addition to the positive effect of a further penetration of some synthetic fiber types, the impact of increased volume sales to the textile industry was felt. When this industry passed through the low point of the textile cycle in mid-1978, it had already begun to replenish its raw material inventories, which were at a low level by the end of 1977.

The increase in mill consumption was also bolstered by the fact that the so-called balance of imports of textile products remained nearly constant. This was largely due to changes in fashion and to the Multi-Fiber Agreement,

Laboratory assistant in British Enkalon's plant (Northern Ireland) tests dyestuff affinity of knitted yarns.

which was renewed with effect from January 1, 1978.

The *carpet market* is increasingly showing signs of saturation. A growing market is only to be found in some countries in the south of Europe. This development places those producers of carpet fibers and carpets who at an early stage concentrated their efforts on the production of specialties in a better position to cope with the consequences of stagnancy of the market.

The *sheer curtain market,* which mainly uses specialty filaments, was able to hold its ground.

In 1978, the production of the *automotive industry* in Western Europe reached a record high. However, the output of the *auto tire industry,* with less than 50% going to new cars and the other part to the replacement market, remained well below capacity. The overcapacity is primarily due to the longer road life of the radial tire, while growing imports are also becoming significant.

The increasing use of radial tires means a higher consumption of steel cord, which has an adverse effect on sales of both viscose and synthetic tire yarns. Although viscose yarns will retain a share in the market for reinforcing materials, capacity reductions will be inevitable industry-wide.

The *other markets* for industrial yarns showed a positive development for industrial fabrics, in particular safety belts, coated fabrics, and fishing nets. The picture for conveyor belts (mining) and ropes was less satisfactory.

» *Tufting operator in Enka's Technical Carpet Center at Arnhem where new yarn types are tested under conditions encountered in practice.*

Enka Europe

In the aggregate, shipments were on about the same level as in 1977. Staple fiber for textile uses, however, was up 10%. Sales of carpet fibers remained practically constant, while industrial fibers registered a 5% decrease, due in part to the termination of steel cord production in the Irish Republic. On the average, there was no improvement in revenues compared with 1977.

Volume sales of *polyester textile filament* were higher. A major factor in this regard was an upturn in the circular knitting sector. Our shipments for the interesting sheer curtain market were maintained at the same level.

Enka has succeeded in developing yarn types that meet the demand for finer yarns, especially in knitwear. They helped maintain both the domestic market position and the relatively high exports level.

The unfavorable market for *polyamide textile filament,* which presents a picture of either stagnancy or decline, prompted Enka's decision to discontinue the production of these yarns in the Wuppertal-Barmen plant and to concentrate production in the Emmen plant. Effected in 1979, this plant closure, coming on top of earlier ones, further reduced our share in this market.

The steadily falling consumption of *viscose textile filament,* which is mainly used to make lining fabrics, renders further capacity reduction inevitable. In 1979, production of these yarns in the Sankt Pölten plant in Austria will be terminated.

Selling prices of *polyester staple* (cotton type) were under heavy pressure due to low-priced imports of staple, staple fiber yarns and fabrics. All the same, the market position was maintained, while export volumes were increased.

A positive feature was the distinct shift in staple consumption toward synthetic fibers. The growing attractiveness of corduroy in end-uses where denim used to be a clear favorite offers better prospects for polyester staple fiber.

The slowing growth in demand for carpets is reflected in the almost unchanged volume sales of *polyamide filament and staple,* with sales revenues for filament being even below the 1977 level. Enka's range of fiber specialties aided carpet makers in their efforts to compose high-quality carpet collections. Especially velour carpets enjoy growing favor with customers.

Shipments of industrial fibers to the Western European tire industry were disappointing, with the exception of steel cord. Enka's sales of *viscose filament* were depressed due to a decline in consumption.

Limited production capacity caused by the closure of our steel cord plant in the Irish Republic in late 1977 prevented us from fully participating in the increasing demand for *steel cord.* The fastest growing market for steel cord is the United States and we are now investigating possibilities of securing a firmer foothold there.

Volume sales of *polyamide and polyester filament* were higher, although selling prices were lower than in the previous year. We were faced with growing competition from producers outside the EEC, notably the United States.

Enka's position in industrial yarns for end-uses such as conveyor belts, ropes, nets, sewing yarns and industrial fabrics was maintained and in some instances improved. A key factor in this respect is the high quality of our yarns, which are especially developed for these applications.

Enka's efforts to develop new products and to find new outlets continue unabated. Successful examples are *Enkamat®* (matting for cowsheds and erosion control), *Stabilenka®* (soil stabilization in road construction), and *Hypofors®* (watertight membranes for reservoirs, etc.).

United States

In the United States, where the industry's position is less unfavorable than in Western Europe, the market for man-made fibers firmed up, which resulted in higher volume sales and prices. Nevertheless, the imbalance between supply and demand for some man-made fibers, like polyester, was such that the industry had to produce at a loss for a considerable portion of the year. Fortunately, this situation largely turned around during the year.

The recovery of the market is reflected in American Enka's results, but prices for the majority of products, though improved, permitted only modest gains. Further price rises will therefore be necessary, also in view of the higher costs of energy and raw materials. Steps have been taken to arrive at a more flexible and more efficient organization structure.

For *polyester filament* a marked improvement in earnings performance was registered. The demand for, notably, the finer yarn types was so strong as to permit a number of price increases, while production capacity was fully utilized for a considerable part of the year.

In conformity with changing fashion, the demand for *polyamide textile filament* in the hosiery sector was up. The introduction of a new yarn type *(Softalon®)* was successful.

Volume sales of *polyamide carpet filament and staple* showed a satisfactory development, although an improvement in price levels, in particular for carpet staple, was blocked by persistent overcapacity in this sector.

Continued strong demand for *viscose staple* held shipments at near-capacity rates. Prices of the majority of staple types, including the new high-absorbency staple fiber *Absorbit®,* were increased to pass through higher costs.

Rest of the world

The market situation in Latin America, the main area for our man-made fiber operations apart from Europe and the United States, compares favorably with that in the industrial countries as far as growth prospects are concerned. For man-made fibers an average growth of 6% per annum is anticipated.

Despite a perceptible downturn of the economy in a number of countries where Akzo companies operate, our affiliates in, notably, Brazil, Colombia and Mexico developed satisfactorily.

In *Brazil,* Polyenka (51%) was able to increase its market share in polyester textile yarns. Production of nylon tire yarn at COBAFI (45%) was started without any major difficulties.

» *Patrol man in the Enka steel cord plant at Oberbruch (West Germany) uses lifting device in doffing completed spools weighing some 40 kg each.*

In *Colombia,* Enka de Colombia (48%) showed on the average a satisfactory development, although volume sales were adversely affected by higher imports of, for example, polyester fabric in the first six months of the year, and by a prolonged strike at a major tire maker.

In *Mexico,* shipments of synthetic textile and industrial yarns of Fibras Químicas (40%) made satisfactory progress. Sales prospects are such that expansion of production capacity is being contemplated.

Important subsidiaries outside Latin America are in India and Nigeria.

In *India,* an expansion of production capacity for polyamide textile filament was completed at Century Enka (39%). At the end of the year, production of polyester textile filament was commenced.

In *Nigeria,* Nichemtex Industries (29%) suffered from power failures over a protracted period of time; appropriate measures have meanwhile been taken. The polyester textile filament plant was started up at the end of 1978.

The 1978 sales volume of Enka group fiber companies in the rest of the world aggregated 65,000 metric tons (synthetic fibers only). In comparison, American Enka sold well over 190,000 metric tons of man-made fibers, while shipments of the Enka companies in Europe stood at 460,000 metric tons.

Research and development

Enka research is currently working on the development of staple fiber types whose characteristics may boost consumption of synthetics in certain textile sectors.

The technology for producing ultrafine polyester filament and staple fiber has now progressed to the point where commercial introduction can be started. One result of the work done so far is a polyester staple fiber type *(Diolen®703)* which, blended with wool fibers, imparts a high degree of stretch to fabrics.

In the field of carpet yarns, process technology was further improved. New specialties became available for commercial introduction.

For industrial yarns, R&D efforts remained focused on improvement of process technology and opening up new fields of application, especially in civil engineering.

The pilot plant for *Arenka®*, our very-high-tenacity aromatic polyamide yarn, was utilized for testing and improving the production process and for investigating a variety of potential applications.

In the field of cellulose, American Enka's research has developed a process for the production of cellulose fibers which requires less energy and does not pollute the environment.

Chemical products

in Hfl million	1978	1977
sales: salt and heavy chemicals	1,794	1,854
specialty chemicals	1,122	1,144
total	2,916	2,998
operating income	122	110
operating income, as percentage of sales	4.2	3.7

This product group comprises:
salt and heavy chemicals, such as
salt, chlorine, caustic soda, soda ash, vinyl chloride; monochloroacetic acid and derivatives, chlorinated hydrocarbons, crop protection chemicals; acetic acid, butanols and acetates; methanol and derivatives, methyl amines, ethylene amines; fatty acids, vegetable oils, fluorine compounds, sulfuric acid, carbon disulfide, and other sulfur compounds;

specialty chemicals, such as
process chemicals and additives, including organic peroxides, rubber chemicals, fillers, and PVC stabilizers for industries engaged in the manufacture and fabrication of plastics and elastomers; organic chemicals, including fatty acid esters, nitrogen derivatives, raw materials for the detergent industry, sequestering agents, disinfectants, gluconates, paper chemicals; catalysts for the petroleum, petrochemical and chemical industries.

Salt and heavy chemicals

In the year under review, most products of Akzo Zout Chemie and Akzo Chemie suffered from vigorous competition on the Western European market, with price erosion as its principal effect. However, we feel confident that for many of our products an improvement in competitive conditions can be realized. Plans primarily aimed at an adaptation of the cost structure have now reached the stage of implementation.

Salt

The market for salt in Western Europe showed a slower growth, while competition became keener. This was especially noticeable in Scandinavia owing to increasing imports from Eastern European countries. Nevertheless, our shipments of *salt for electrolysis plants* to this area were not unsatisfactory. Exports of *specialty salt products* developed favorably.

Massive consumption of *deicing salt* in the Netherlands in the 1978/79 winter season caused depletion of inventories, which necessitated imports to meet the heavy demand. Volume sales of salt in the United States (International Salt), with deicing salt constituting a relatively large share, were higher than in the prior year.

Our Brazilian *solar salt* company CIRNE started construction of 12 shrimp cultivation ponds with a total surface area of approximately 2,700 acres. The first "harvest" of this promising project will take place in 1979. The Netherlands Institute for Fishery Investigations at IJmuiden, which provided scientific support, has rendered a major contribution to the success of this project.

Chlor-alkali products

Despite near-capacity utilization of our electrolysis plants, the high energy costs in the Netherlands and the low price level of caustic soda produced in electrolysis have resulted in unsatisfactory earnings. Harmonization of Dutch energy prices with those elsewhere in Western Europe is a prerequisite for an improvement of our competitiveness. For the co-product caustic soda we trust that in the longer term more balanced market conditions will be attained.

As stated in the General Review, a decision of principle was taken in early 1979 to expand electrolysis capacity by 250,000 metric tons of chlorine per annum, provided that certain conditions are fulfilled.

A major expansion of chlorine processing capacity, by 125,000 metric tons per annum, relates to the vinyl chloride plant. This expansion will be completed in the first half of 1979.

Shipments of *vinyl chloride monomer* were still satisfactory but revenues were lower due to stagnancy in demand. Price levels stabilized at the end of the year.

For 1979 we do not anticipate full utilization of the additional capacity. We aim at strengthening our

Worker of CIRNE solar salt plant (Brazil) examines shrimp specimen to establish condition of the crop.

competitive position through cost reduction and process improvements; at a later stage the increase of our own chlorine production will help us to achieve this goal.

Petrochemicals

The market for petrochemicals showed hardly any improvement over the previous year. The pressure on earnings was reduced through termination of our unprofitable *vinyl acetate* production (Europoort) and elimination of major start-up problems in our *monochloroacetic acid* plant (Hengelo) and our *herbicides* plant (Botlek). A tendency toward a slight improvement in price levels was perceptible at year's end for monochloroacetic acid and herbicides.

For three joint ventures, plants were completed whose capacities could not be fully utilized because of present market conditions.

The second *methanol* plant at Delfzijl (Methanor v.o.f.) was completed in a period of unbalanced market conditions, with low prices. As a result, the plant's capacity could not be fully utilized. An impetus to an increase in prices has been provided largely as a result of an upward trend in raw material costs. However, in the next few years it will be difficult to achieve a fair operating income for this second plant, also in view of the completion in 1978 of a methanol plant in Libya and facilities that are now under construction in Eastern European countries.

»
Drilling operator of Akzo Zout Chemie in Hengelo (the Netherlands) sinks well into salt bed through which salt will be brought to the surface in solution.

As its plant went on stream, Delamine B.V. (Delfzijl) was faced with a soft market for *ethylene amines.* However, the growth in demand for polyamines is not unsatisfactory and we trust that Delamine will be able to capture a share of the international market, especially in Europe.

The plant for *monochloroacetic acid* in Japan (Denak K.K.), which had a smooth start-up, will have to restrict production for the time being because prospects for exports are less favorable due to the marked rise of the yen.

Industrial chemicals

As in the previous year, the market situation for industrial chemicals, mainly raw materials, was depressed. This was reflected in a decline in business for *silicates, sulfo products* (competition from the Far East) *and fatty acids* (strongly increasing raw material prices). The production of *citric acid* has now been terminated, while the fact that two major customers of *diphenylol propane (bisphenol A)* had started their own production induced us to shut down our DPP plant in Amsterdam.

The development for *fluorochlorohydrocarbons, sulfuric acid and carbon disulfide* was not unsatisfactory. Volume sales of fluorochlorohydrocarbons were depressed because of a decline in their use as a propellant in aerosols, but compensation was provided by lower raw material prices.

Due to purely temporary factors, shipments of carbon disulfide remained on a very high level. However, increased competition owing to completion of production capacity in Eastern European countries is expected to make our position less comfortable in the coming years.

Research and development

A proprietary process for the production of very-high-purity monochloroacetic acid, which is employed by our Hengelo plant, has now also found application in the Denak plant in Japan.

The fluid bed electrolysis cell developed by us is now serving its first practical purpose in separating traces of dissolved copper from waste water.

Given the complex nature of our process technology, we pay much attention to the development of process information systems, which have in many instances resulted in efficiency improvements.

Specialty chemicals

Being a supplier of products which are tailored to the needs of our customers and play a vital role in controlling the production processes of many industries in Europe, the United States and Japan, we were able to increase volume sales for a number of products. For other products we were faced with weak markets. In the case of Armak (Akzona) the market situation for some products was less favorable than in the preceding year.

Process chemicals and additives

The market for these products, which are used by industries engaged in the manufacture and fabrication of plastics and elastomers, showed a fair growth.

Our line of *initiators* was supplemented with peroxide suspensions, whose intrinsic safety will soon make it possible to supply them in bulk to, notably, the PVC industry. In a joint venture with Mitsui Petrochemical Industries, a production unit for *dicumyl peroxide* will be constructed at Mons (Belgium). This product is used by the cable-manufacturing and rubber-processing industry.

Commercial introduction of our new generation of *tin stabilizers* for the PVC-processing industry was hampered because government approvals for application of these stabilizers in materials for the packaging industry could not yet be obtained. This situation is expected to improve in the foreseeable future.

Organic chemicals

The plant for the production of *fatty amines and quaternary ammonium compounds* at Mons (Belgium) came on stream in the second half of 1978. Its capacity is 20,000 metric tons per annum.

There are many industrial end-uses for these surfactants, with laundry softeners now being the most important application. In this market, which shows a fair amount of growth, shipments of our main product *Arquad®* are expected to increase less rapidly for some time to come, following the introduction of changed formulations. Interesting prospects are offered by potential uses in the preservation of wood and in the production and transport of oil.

One of the results of the cooperation with Lion Fat & Oil Co. (Japan) in the field of raw materials for detergents is the acquisition of a license for the sale of an advanced thin film sulfonation reactor, which is particularly well-suited to the manufacture of easily degradable types of surfactants on the basis of alpha olefins.

NAS (sodium aluminum silicate) is available for the partial replacement of phosphates in detergents. Further commercial development will largely depend on the results of anti-pollution legislation in this field now being prepared in various countries.

Also in view of environmental standards, we decided to modernize the production facilities for *sequestering agents (Dissolvine®)*. The simultaneous capacity expansion for this flourishing group of products will mainly be for specialties.

In the sector of *paper chemicals* the new plant in Cologne for the production of *Cyclopal®* paper size came on stream. Sales of paper chemicals on the basis of natural resins (rosin sizes) were favorably affected by an upturn in the paper industry.

One of the first results of the search for potential applications of products developed by us on the basis of alpha olefins is a new emollient *(Elfacos®)*. This additive for cosmetics met with a favorable reception in test marketing.

Catalysts

Our sales of *cracking catalysts* were depressed by a rapid breakthrough of new, greatly improved types in the U.S. We are currently working on the development of new high-performance types and we are confident that we will be able to introduce them in 1979.

The market situation for our *desulfurization catalysts* was not yet satisfactory, but we expect an increasing demand as environmental standards acquire greater significance again.

Chemist of Akzo Chemie's Düren facility (West Germany) explains properties of the new product Elfacos® *used by the cosmetics industry in creams, lotions and lipsticks.*

Research and development

Armak is making satisfactory progress with the further development of *Accurel® porous polymer,* which is expected to have a wide range of uses. Potential applications are as a microfiltration medium and as a matrix for the controlled release of active ingredients.

Tin stabilizers are being developed with characteristics matched to the specific needs of the Western European and of the North American plastics industry.

A process was developed for the production of new specialty *di-isocyanates.* Compared with existing isocyanates, they possess properties that make them more suitable for use in polyurethanes.

In the area of *synthetic fatty acids,* types with a novel structure were developed, which are fluid despite their high molecular weight. The interesting characteristics of these products and their derivatives will prove to be of great value to the lubricant industry and branch-related industries.

Furthermore, we developed new formulations for *organic peroxide* suspensions, resulting in much safer handling and improved technological characteristics.

The development of a *flame retardant* for polypropylene was completed. This product combines excellent flame-retardant properties with a very high resistance to ageing, while dosages are lower than usual. Uses envisaged for it are mainly in polypropylene tubing, furniture and fibers.

Warehouse assistant of Montesano – Tintas Wanda (Brazil) prepares shipment for dispatch.

Inspector of Deutsche Akzo Coatings measures thickness of paint coat on auto body in automobile manufacturing plant.

Coatings

in Hfl million	1978	1977
sales	1,049	975
operating income	64	45
operating income, as percentage of sales	6.1	4.6

This product group comprises paints, stains, synthetic resins, and adhesives for:
industrial markets, e.g. the road and rail vehicles, aircraft, metal products, wood products, and furniture industries;
trade markets, e.g. auto refinishing, house building, road marking, shipbuilding and maintenance, and general construction;
the do-it-yourself (DIY) market.

House paints and DIY paints

Introduction of our European "2021" color range, based on the Acoat Color Codification (ACC) system, in the *building and DIY sectors* has already produced a perceptible improvement in our position, despite lower growth in these markets. The improvement and extension of the mixing machine network was also helpful.

For *house paints,* emphasis in Europe will largely be on color marketing based on high-quality products.

In the *DIY sector,* volume sales are now growing at a lower rate. Additionally, shifts are occurring in the distribution pattern: firstly, toward high volume outlets and, secondly, toward interior decorating specialty stores. The latter shift prompted us to revise the concept of our *Decorette®* centers.

Automotive paints

Volume sales were stimulated by the favorable development of the Western European automotive industry. Our efforts to develop pollution-free and energy-saving products and systems have paid off in that we are now able to offer to the metal-working industry water-thinnable systems containing little or no organic solvent. Initial results achieved with these materials are encouraging: a number of cars were successfully treated with a fully water-thinnable paint system.

Company-patented means of improving structural behavior of wet paint films helped toward realization of our high-solids systems.

Our *Zincromet* zinc-based steel primer is of demonstrated excellence as regards corrosion resistance in automobiles – a field in which the demands are getting increasingly tougher.

Auto refinishes

Our leading market position in Western Europe was strengthened by advances in quality, particularly of the metallics. The potential of our bicomponent products was enlarged through the introduction of *Temp-o-actif.* Our new *Unisurfacer* spraying filler met with a good reception on the part of our customers.

Other coatings

In *coil coatings* our range was expanded and our technology base strengthened by a major innovation in the field of silicone polyesters.

Our *aircraft coatings* are favored by more than sixty airlines the world over, and by many aircraft construction companies. Our high-grade paints have now also secured us a foothold in Japan.

Synthetic resins

The progressive development of curing technology of *synthetic resins* and coatings has opened up new fields of application for resins baked by means of radiation (e.g. electron-beam and UV radiation). The use of radiation curing in Western Europe is expected to increase.

The environmental aspects of our resins are receiving close attention.

For unsaturated polyester systems we made application for a patent covering an invention which helps keep down emission of the styrene solvent.

Research and development

R&D results and ongoing projects for the individual product classes have already been touched upon above; in the year under review we further worked to broaden our technology base.

Jointly with Corporate Research, advanced analytical techniques are being used in checking quality of raw materials and intermediates, and in fundamental studies of thermal-curing mechanisms.

Pharmaceuticals

in Hfl million	1978	1977
sales	1,211	1,099
operating income	140	133
operating income, as percentage of sales	11.6	12.1

This product group comprises:
ethical drugs, such as anabolics, oral contraceptives, corticosteroids, sex hormones, psychotropics, and preparations for the treatment of cardiovascular diseases and of gastrointestinal disorders; additionally, diagnostics and mechanical contraceptives;
hospital supplies, such as plasma fractions, infusion liquids, sera, diagnostics, medical equipment, and medical single-use products;
non-prescription drugs, such as vitamin preparations, pain killers, cough syrups, sweetening agents, and dietary products; furthermore, an over-the-counter pregnancy test;
raw materials for the pharmaceutical industry, such as steroids, biochemicals, alkaloids, and polypeptides;
veterinary products, such as poultry vaccines, other vaccines, and hormone preparations;
crop protection products, such as fungicides, herbicides, and insecticides.

The slowing of the growth rate in a number of product sectors did not persist in 1978. Business was somewhat better than in 1977, both for Akzo Pharma and for Organon Inc. (Akzona). Endeavors to control costs in health care continued, but in several countries the authorities appreciated the necessity for price adjustments in compensation for inflationary cost rises.

The increasing severity of the standards for approval of new drugs continued to be experienced as a retarding factor and as one that carries significant economic weight. This constant intensification of regulatory activity not only slows down innovation, it also progressively shortens the period in which the pharmaceutical industry can reap the fruits of its research efforts.

We feel that, to counter the demotivating effect this has for the development of new products, an extension of the legal validity of drug patents is desirable.

» *Medical representative of the Thiemann pharmaceutical company (West Germany) discusses preparations for the treatment of cardiovascular diseases.*

Ethical drugs

Business in this product sector (Organon) was quite satisfactory, especially because of higher volume sales in West Germany and the favorable development of sales in the French market.

Internationalization was begun of the product range of R.E.T.I. (France), which includes drugs for the treatment of cardiovascular diseases and of gastrointestinal disorders. Some of the compounds now being developed in R.E.T.I.'s research laboratories look promising.

Following a stage of strong growth in the line of *oral contraceptives,* the rate of expansion has now been slowing down for some time. With the addition to its line of contraceptives of the IUD (Intra Uterine Device) *Multiload Cu250®,* a flexible plastic coil with a high degree of reliability as a mechanical contraceptive, Organon expects that it will at least be able to retain its share of the differentiated market for contraceptives.

Hospital supplies

Organon Teknika again performed well, despite perceptibly stiffening competition in the international markets. The scope of activities was broadened through the purchase, together with Akzona Inc., of all the stock of CCI Life Systems, Inc., a U.S.-based company specialized in the manufacture of hemodialysis equipment. In addition, several new products were introduced, including:

- *Tempadex®,* a single-use thermometer based on a new chemical technology;
- *Minivisor,* a portable ultrasonic device which facilitates cardiological or obstetrical checks.

In Turnhout (Belgium), the foundation stone was laid for a new Organon Teknika headquarters.

Non-prescription drugs

The development in this sector was again prosperous, largely as a result of the expansion of Chefaro's international business. Substantial exports to the United States of an over-the-counter pregnancy test made a significant contribution.

We are not so satisfied with the situation on the Dutch market, where sales of popular drugs were depressed, notably because of criticism of the use of vitamins and sweetening agents. At the end of the year, pain killers received some adverse publicity, which, however, was based on unrealistically high doses.

Raw materials for the pharmaceutical industry

Diosynth's market position was characterized by further declines in sales revenues, which were in part offset by fair capacity utilization and lower prices for certain purchased raw materials.

A relatively large harvest depressed prices of poppy capsules and of *alkaloids* extracted from them. Variable harvests and a general trend toward processing the capsules where they are produced make it no easy matter to meet the future needs of these raw materials.

In the sector of *biochemical products, heparin* volumes on the market were well in excess of demand. This caused very low market prices, which were partly compensated by lower prices of purchased raw materials.

Sales revenues from *pharmaco-chemical products* likewise were low. Crops of *Solanum Aviculare* for our New Zealand operation were planted as scheduled. The plant yields *solasodine,* a starting material in the production of *steroids.*

» *Virologist of Intervet (U.K.) prepares a tissue culture to cultivate virus for use in vaccines against diseases of poultry.*

Veterinary products

Intervet achieved excellent results and once again made it clear that it is among the leaders in the field of poultry vaccines.

Introduction in 1976 of a vaccine for the control of Gumboro's disease was followed in 1977 by commercialization of a vaccine *(Clone 30)* for the control of Newcastle disease in poultry. In the year under review, Intervet placed on the market a further, unique, vaccine. Named *NOBI®-VAC-E.D.S. 76,* this vaccine is active against a virus disease which causes egg production to drop considerably.

With a U.S. pharmaceutical company discontinuing its European veterinary activities, Intervet has taken over exploitation of two products in the field of estrus regulation.

Crop protection products

The negotiations with the U.K. chemical and pharmaceutical Fisons group have produced agreement on the framework for a possible take-over of AAgrunol by Fisons in two stages. In the first stage the marketing and development functions are to be transferred. In the second stage the plant itself will follow, provided that a new manufacturing license be granted under the Public Nuisance Act.

By the end of the year, talks about form and effects of the transaction were held with the Works Council and the unions, whose approval was obtained.

Research and development

To heighten the flexibility and responsiveness of Organon's research organization and to promote the integration of scientifically related activities in our research centers it was decided to combine research programs and concentrate on a few selected ones.

Current research focuses are reproductive medicine, central nervous system active drugs, cardiovascular drugs, and diagnostics.

Besides these goal-oriented research programs, there will continue to be room for general exploratory research.

Consumer products

in Hfl million	1978	1977
sales	696	611
operating income	31	16
operating income, as percentage of sales	4.5	2.6

This product group comprises:
detergents and cleaning products;
health and body-care products, such as fragrances and cosmetics;
foodstuffs, such as oils and fats, sauces, soups, preserves, party snacks, and various food specialties.

Our product mix gives a reasonably stable base to sales and earnings, even under the present economic conditions. Competition has become keener, however, particularly since the market for certain product categories ceased to grow in any significant degree. Endeavors to compensate for the resulting pressure on margins rely on adjustment and innovation of the product range, expansion into new geographical markets, and cost-cutting measures.

In the improvement of the product range our R&D plays an important part.

Overall, the division's performance in the year under review was moderately satisfactory, although profitability in the foodstuffs sector is too low.

Detergents and cleaning products

The market position of the principal branded articles *Biotex*® and *Dobbelman*® was strengthened. In the Netherlands, Belgium, Denmark and Norway, the four countries where we sell most of our products, income gains were achieved. In Norway, the base of operations of Tomten A/S was broadened.

Driver employed by the Blumøller detergents manufacturing company (Denmark) with his daily transport of Biotex® *soaking agent.*

Otarès (Enschede), a company specialized in institutional and industrial cleaning systems, realized major improvements in manufacturing, packaging and storage. The envisaged acquisition of Sorma-France will constitute another step toward intensification and expansion of our interests in the Benelux, Denmark and France.

Health and body-care products

Recter (Veenendaal) continued its healthy development, with its top brands *Roosvicee*® and *Zwitsal*® meeting with growing demand, nationally and internationally.

The relocation of Boldoot's operations to Apeldoorn and the innovation of the line of *Boldoot*® articles have created better prospects for these body-care products.

Internationalization of our body-care products was advanced in the year under review through negotiation of a joint venture with Eylure Ltd in Great Britain, and through expansion of existing interests in Indonesia, which are largely based on licensing agreements.

The Dutch market for aerosols is declining. Efforts on our part to introduce a non-polluting propellant have not so far measured up to our expectations.

Foodstuffs

The development of the foodstuffs sector in the Netherlands causes us some concern. *Duyvis*®-brand articles were exposed to fierce competition which caused margins to crumble.

The party snacks market is steadying at its present volume. It now takes a great deal of ingenuity to successfully launch new products and varieties. Our valuable know-how in this field is well-suited to international exploitation; in the year under review, attractive forms of cooperation with a number of foreign manufacturers of party snacks have already been realized.

The market for dry and canned soups is declining and we are now selling at losing prices.

Failing prospects for a healthy development it has been decided, following earlier substantial reductions, to shut down the Wilco cannery (Assen) effective September 1, 1979. A socially acceptable solution for the plant's personnel is currently being sought.

Romi's new oil and fat refining facilities at Vlaardingen have now become fully operational. For the longer term we expect fair profitability for this business unit, whose products are subject to sizable price fluctuations. Endeavors are being made to achieve adjustments in the product range and in the geographical pattern of sales.

Our ownership in Mayolande S.A. (France) was increased from 50% to 90%. By means of its brands

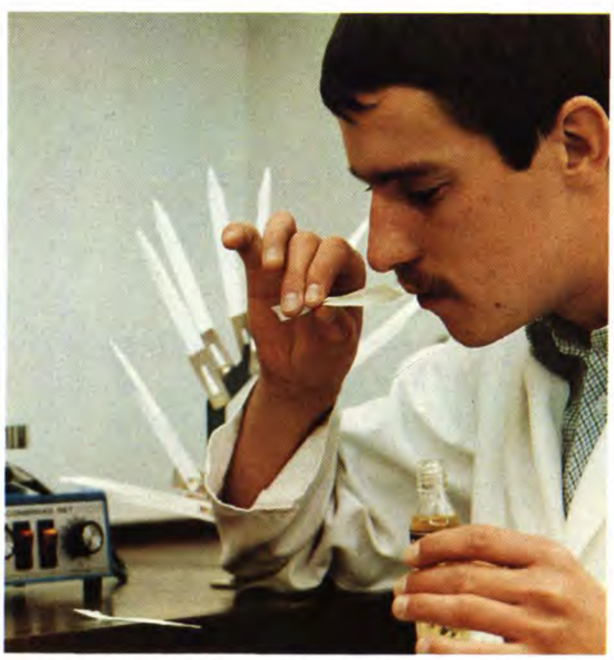
Benenuts® (nuts) and *Benedicta*® (sauces, oil, mustard, vinegar), the company again strengthened its position in the French market. Chances for further growth are amply available in this market.

Research and development

The topical problem of the replacement of phosphates in detergents continues to demand much attention. So far, none of the alternatives the detergents industry came up with has been wholly satisfactory in regard to the total replacement envisioned in the Netherlands.

After many years of R&D work, we succeeded in formulating an enzymatic toothpaste *(Zendium®)* which strengthens natural defenses to caries. The product has been extensively tested and was introduced early in 1979.

In the foodstuffs sector, the development of new party snacks both for the Dutch market and for exportation has a high priority.



Fragrance evaluator plays key role in the development and manufacture of Boldoot® *products.*

Forklift truck driver of the Mayolande foodstuffs company at Seclin (France) stacks cartons.

Miscellaneous products

in Hfl million	1978	1977
sales	1,349	1,274
operating income	107	80
operating income, as percentage of sales	7.9	6.3

Miscellaneous products include:
machinery and equipment for the man-made fiber and plastics industries, hydraulic equipment, special pumps and assemblies for the automotive industry;
wire and cable products and systems, for electrical and electronic applications;
dialysis membranes for medical uses;
plastics, films, adhesive tape, and cellulose-based industrial colloids;
leather, non-wovens, shammies, and sponges.

Barmag Barmer Maschinenfabrik (Enka) of West Germany, with operations in Switzerland, the United States, Brazil and Hong Kong, maintained its market position and its share of exports (approximately 80%) in 1978, despite lower capital spending by the textile and man-made fiber industries in the developed countries. Sales even showed a rise compared with 1977, with the share of such products as *equipment for the plastics industry, hydraulic equipment, special pumps and assemblies for the automotive industry* up to about 16%.

In 1978, research activities centered on the further development of machines for the man-made fiber industry. The results achieved were not limited to advances in design or economy of operation, but included more effective noise abatement. Other work was aimed at broadening the bases of the hydraulics and automotive sectors, both through addition of new products and through adaptation of existing products to new applications.

Brand-Rex (Akzona) experienced a satisfactory year, reflecting the favorable development of the U.S. market. The products of the electronic and industrial cable division and of Pyle-National (electrical and electronic connection systems) had a particularly substantial share in the resulting sales gains.

Enka's *dialysis membranes* continued their gratifying development in 1978. Demand for our *Cuprophan® hollow fibers* was so strong that it was decided again to expand production capacity. New Enka-developed membranes are currently in the clinical testing stage and are expected to assist further expansion. Blood purification by means of membranes has hitherto been confined to kidney patients, but it now looks as if the technique could also play a part in the treatment of other diseases.

Akzo Plastics (Enka) experienced heavy pressure on prices, at nearly unchanged volume sales, for its *engineering plastics.* On the positive side, opportunities for the sale of spinning granules to man-made fiber producers were significantly more plentiful than in the previous year.

Introduction of *plastic bottles* for the packaging of carbonated beverages was successfully begun in the United Kingdom. Together with the Swedish packaging company PLM, a joint venture named Strongpac Enka – PLM was formed. The new company will undertake the manufacture of bottles from our *Arnite® thermoplastic polyester* and their sale to, particularly, the international soft drinks industry.

Enka's *industrial colloids* suffered from fluctuating demand for products intended for use in mining and oil production. Sales of drilling mud additives to oil producers picked up by the end of the year, however. Results for these products were particularly affected by the depreciation of the U.S. dollar.

Armira, Akzona's *leather* division, again experienced a disappointing year, which was largely caused by very high prices for hides.

The Colbond product group of Enka has meanwhile secured a strong market position for its products *Colbond®* and *Colback®*. These non-wovens are used in various kinds of roofings and floor coverings, in road building and in hydraulic engineering.

Arnhem, March 29, 1979

The board of management

» *Technician of Barmag Barmer Maschinenfabrik (West Germany) works on assembly of integrated spin-draw-texturing machine for carpet yarns.*

Management

March, 1979

Akzo N.V. is the Group's holding company with direct and indirect participations in a number of companies. Together they constitute the Akzo Group.

Board of management of Akzo N.V.

The board of management is the highest executive body in the Akzo Group.

The executive committee is a part of the board of management and is composed of the president and the two deputy presidents, viz. A.G. van den Bos, A.A. Loudon and J.A. Wolhoff.

It is the business of the executive committee to set the course of the Group as a whole and to direct its operations. This does not entail direct operational or functional tasks and responsibilities, though there does exist a division of work among the members, which is also based on geographical policy aspects.

However, after joining the executive committee in May, 1978, A.A. Loudon retained responsibility for social policy, public affairs, organization, and pension affairs.

Two members of the board of management bear responsibility for the following functional areas:

H. Kramers	research and development, engineering, safety and environmental affairs, patents
H.J. Kruisinga	financial, accounting, legal and fiscal policies, automation affairs, internal auditing, insurance

The following board members are in charge of operational units of the Group:

H. van Doodewaerd	Akzo Consumenten Produkten
A. van Driel	Akzo Coatings
J. Veldman	Akzo Pharma
H.J.J. van der Werf	Akzo Zout Chemie
M.D. Westermann	Akzo Chemie
H.G. Zempelin	Enka

Secretary to the board of management and to the supervisory council is J.P. Huges.

Acting as adviser to the board of management is W.K.N. Schmelzer, specifically in relation to international affairs and issues of a general social nature.

Central staff departments

The management of the Akzo Group is assisted by a number of staff departments based at Arnhem.

Officers

M.W. Arts	internal auditing
S. Bergsma	financial affairs
Mrs. M.A. van Damme-van Weele	chemical development
A.M. van Haastrecht	organization
C. Hoek	legal affairs
H.S. Jongepier	environmental and safety affairs
J.K.G. Meijnen	insurance affairs
H.W. Muzerie	group development
O.H. Nijman	fiscal affairs
R.J. Ovezall	accounting and management information; public affairs
C.M. Sneep	personnel affairs
P.J.S.Th. Stehouwer	research and development
T.M. Tieleman	economic affairs and planning
A.W. Zijlker	computer affairs

Other staff officers

B. Klaverstijn	information
E.W. Meier	international relations

Akzo Engineering

J.R. Eppenga

Managements of divisions in which Akzo N.V. holds an interest of 95% or more

Enka
H.G. Zempelin president
J.R. Hutter deputy president
H. Stöhr
G. Tückmantel
J. Verhaar

A. Bendziula
D. Sorgdrager

A distinct unit of Enka is
Enka International
S. Minnema president
G.G. Cerutti
A.F.J.C. Zillikens

Akzo Zout Chemie
H.J.J. van der Werf president
J.H. Dijkema
G.H.W. Meeder

Akzo Chemie
M.D. Westermann president
J.C.P. van Oosterom

M.E. Hartman
D.B. Kagenaar
P.W. Pfeiffer
H.A. Praetorius

Akzo Coatings
A. van Driel president
R. de Bonneval
C.P.B. Littooy
W.L.W. Ludekens
K.G. Schultze
C. Zaal

Akzo Pharma
J. Veldman president
J.H.H. Florax
C.P. Spoel

B.H.M. van Dommelen
H.M. Schut
W. Smit
F.L. Vekemans
A.G. Vermeeren

Akzo Consumenten Produkten
H. van Doodewaerd president
W.P. Boerma
M.A. Hoolboom
P.B. van Hulst
H.B. Jacobs
A.M. van der Linden
J.E.H. Sikkink

Managements of national organizations

Akzo Nederland
W.J. Wolff president

Akzo België
F.C.L. De Deken president

Akzo Indústria e Comércio, Brazil
J.M. Hessels president

Mercator Internationaal, Japan
T.A. Townsend managing director

Akzona, the North American member of the Akzo Group

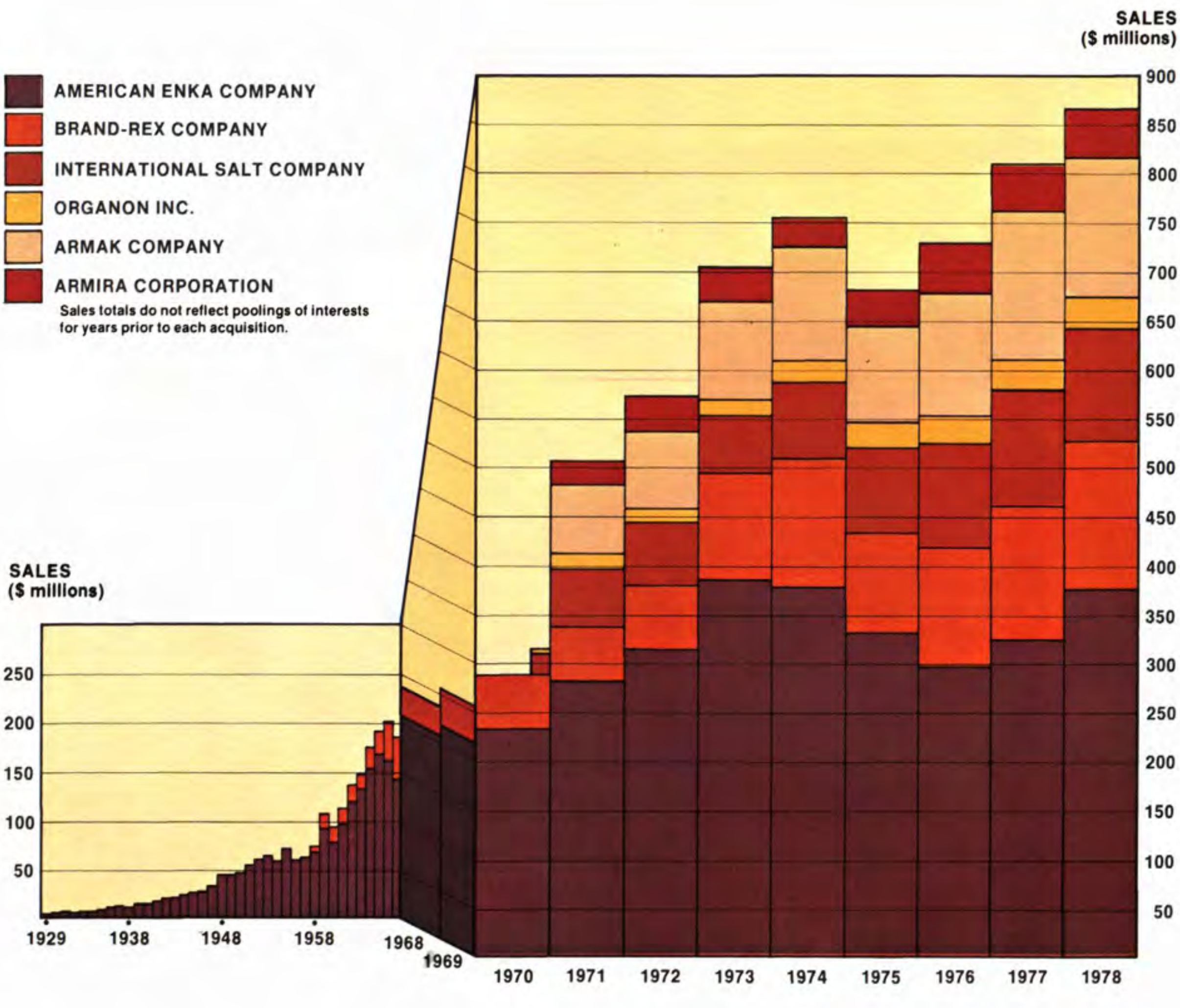
Akzona Incorporated is a diversified manufacturer in the chemical process and other industries, doing business primarily in the United States and Canada. Its six operating companies produce man-made fibers (American Enka Company); industrial and process chemicals, and pressure-sensitive tapes (Armak Company); fashion leathers (Armira Corporation); electronic devices, connectors, wire and cable for industrial and communications systems (Brand-Rex Company); salt and salt products (International Salt Company); and ethical pharmaceuticals and diagnostic products (Organon Inc.). This line of products is more or less the U.S. counterpart of the product mix of the Akzo Group elsewhere.

Akzo N.V. holds approximately 66 percent of Akzona's common shares and six Akzo executives serve on the Company's eighteen-member Board of Directors.

Akzona was formed in September, 1970, through the combination of American Enka Corporation, International Salt Company and Organon Inc. Brand-Rex Company, which had previously operated as a division of American Enka, became a separate operating company within the new corporation. In January, 1971, Akzona acquired Armour Industrial Chemical Company and Armour Industrial Products Company, now forming Armak Company, and Armour Leather Company, now named Armira Corporation.

History

In 1928, AKU – under its then existing name of Nederlandsche Kunstzijdefabriek (NK) – formed American Enka Corporation in an effort to open up the North American market for its rayon products and avoid the effects of restrictive import barriers. The new company chose a site near Asheville in Western North Carolina for its first plant, and production commenced in July, 1929. Over the next thirty years, the company grew



steadily, expanding its rayon facilities and introducing a wide range of nylon products. During this period, sales grew to more than U.S. $ 68 million, and the company's expansion included the construction of one of the world's largest centers for the production of man-made fibers, at Lowland, Tennessee.

In the late 1950s, American Enka acquired two New England manufacturers of wire, cable and electrical insulating material, the Rex Corporation and William Brand & Co. These two companies became an operating division of American Enka, under the name of Brand-Rex Company. American Enka made its entry into the polyester yarn and staple markets in 1965.

In 1969, AKU's merger partner of that same year, Koninklijke Zout-Organon N.V. (KZO), purchased a 51 percent interest in International Salt Company, one of North America's largest producers of salt and salt products.

Much earlier, in 1937, Organon N.V. had entered a joint venture to market its specialty hormone products in the U.S., setting up Roche-Organon in partnership with the Hoffmann-La Roche Corporation.

In 1948, Organon N.V. acquired sole ownership of the company and renamed it Organon Inc.

The three companies (American Enka, International Salt and Organon) were operating successfully, but each realized that greater size, stability and breadth of operation would be necessary to help them maintain a high degree of competitiveness in the business climate of the 1970s and beyond. The companies also believed that, through association, the vast technological and research resources of Akzo – to supplement their own – could be better coordinated for optimum utilization in North America.

Thus, in 1970, Akzona was formed. The chart on page 36 shows both the internal growth of the original American Enka Corporation, and the external gains resulting from acquisitions. In 1978, less than half of Akzona's consolidated sales came from fibers.

Position in the Akzo Group

Geography, combined with the fact that its activities are almost entirely confined to the North American market, have placed the Company in a rather unique position in the Group.

This position is characterized by a high degree of autonomy, also in matters of policy, though of course all decisions are tested for their consistency with Akzo Group strategy. Furthermore, Akzona's position is in line with the principle of decentralization of powers that was laid down for divisions and Group companies when Akzo was formed in 1969.

Besides Akzo's representation on the Akzona Board of Directors, there is a broad-based exchange of information, with assistance being rendered in both directions, particularly in the research area.

Research and development

Akzona has chosen to concentrate its research efforts in four major areas which offer above-average potential for specialization and growth, and which are compatible with the orientation of the Company. These fields are man-made fibers and high polymers, chemicals, pharmaceuticals, and electronic/electrical components. This effort is staffed by some 700 employees located principally at American Enka, Armak and Organon.

The Company's research needs vary greatly among its six operating companies. To cover this spectrum of needs in the most productive manner, American Enka's Research Center provides in-house technical/research service as requested by other Akzona units on a full cost basis. However, the Company is firmly committed to decentralized research and as soon as any company can justify an essentially full-time on-site facility, that activity is shifted to the local unit.

Akzona spends approximately 16 percent of its research budget to gain access to the large programs of Akzo in Europe, as the great bulk of Akzo research has immediate or long-term potential for application to Akzona's activities.

In 1978, an overall agreement was concluded with Akzo N.V. covering in general terms the exchange and use of knowledge relating to products, techniques and systems available to both companies during the term of the agreement.

This agreement does not interfere with specific agreements covering parts of the business activities of the companies, such as between:

- American Enka and Enka International in the fiber field;
- Armak and Akzo Chemie in the chemical field;
- International Salt and Akzo Zout Chemie in salt refining and engineering;
- Organon and Organon International in the pharmaceutical field.

In pursuit of new products, Akzona relies not only on its own research and that of Akzo, but maintains an ongoing program for licensing new concepts, devices and materials developed by others.

American Enka Company

American Enka is one of America's five largest producers of man-made fibers. Its 7,900 employees work in nine plants in six locations in the Carolinas and Tennessee. Originally a single-line producer of rayon filament yarns, it has since become a diversified manufacturer of nylon and polyester filament yarns,

nylon, polyester and rayon staple fiber, and polypropylene fibrillated slit film. The company has facilities to produce over 225,000 metric tons of filament yarn, staple fiber and slit film annually.

In recent years, the leading market for American Enka's yarns and fibers has been for apparel fabrics, both knitted and woven. A close second has been the home furnishings market, primarily for carpets, but also for upholstery and drapery fabrics. Non-woven applications constitute a growing market for rayon staple, and industrial applications account for the remainder of market uses.

The man-made fiber industry experienced a year of recovery in 1978, following an extended period of weakness. American Enka's sales and earnings were both up, primarily as a result of strengthened demand for polyester filament, BCF nylon carpet yarn and rayon staple fiber. The company's basic product line, strengthened by specialty products, is strong and several new or improved yarns will be added during 1979.

Armak Company

Armak produces a broad line of products in both the specialty chemical and industrial product areas. Since its acquisition by Akzona in 1971, two companies have been added to Armak's base: Noury Chemical Corporation in 1973 and Pioneer Chemical Works in 1975. Subsequently, the company built a grass-roots fatty amines facility at Morris, Illinois, and a hydrodesulfurization catalyst plant and a peroxide plant, both based on Akzo technology, at Bayport, Texas. In 1978, the company disposed of its abrasives and coated products units. Armak's 1,200 employees work in nine plants located in six states and Canada.

Major markets for Armak Chemicals are for fuels, lubricants and oil production; plastics; mineral recovery; and household fabric softeners. The company's pressure-sensitive tapes are used for industrial packaging, sealing and masking applications. Armak is the largest producer of fatty amines and related derivatives in both the U.S. and Canada and is one of the leading suppliers of polymerization initiators to the plastics industry.

Armak registered disappointing results in 1978 as both sales and earnings were off from the prior year. The primary negative factor was an extended strike at its Michigan tape plant, as other units reported income equivalent to or slightly better than their 1977 performance. New products, combined with process improvements on older product lines, should open new markets and increase market opportunities for Armak.

Armira Corporation

Armira is a leading producer of fashion leathers used in footwear, personal leather goods and apparel, and exports significant quantities of finished and semi-processed leather. It is also the style leader and one of the largest producers in the industry. The company's 600 employees work in two plants, in Wisconsin and Tennessee.

Armira reported a gain in sales but a decline in earnings in 1978, resulting from high raw material prices and softening market demand for leather. The company's effective utilization of raw material, continued market diversification, and establishment of profitable market priorities should strengthen its position in the industry and lead to further improvement in its performance.

Brand-Rex Company

In 1969, prior to its establishment as a separate Akzona operating company, Brand-Rex acquired Nonotuck Manufacturing Company, a supplier of drawn

and stranded wire. The company has since expanded its base through several acquisitions: Abbott & Company, a manufacturer of electrical interconnecting assemblies, in 1971; Pyle-National, a producer of industrial connectors, in 1973; Teltronics Inc., a maker of specialized equipment for telephone operating companies, in 1974; and the Burndy *Tape cable*® line of flat cables, also in 1974. Overseas, the company took a joint interest (40%) with British Enkalon in Brand-Rex Limited, located in Scotland, upon its formation in 1972.

Brand-Rex employs approximately 2,800 people at fourteen plants located in eight states, Canada and Great Britain. The company's major markets are telecommunications, commercial and industrial construction, business machines, primary processing industries, consumer durables, Government/aerospace, and utility companies.

Brand-Rex results in 1978 showed significant improvement over the prior year. Sales and earnings were both up substantially. The company will place continuing emphasis on technological enhancement, research and development.

International Salt Company

International Salt is one of the largest producers and marketers of salt in the U.S., with reserves estimated at nearly 400 million metric tons. The company produces rock, evaporated and solar salt products. In 1972, the company acquired Iroquois Salt Products Ltd. of Montreal, Canada.

International Salt's major markets are for highway salt products, where it is the leading marketer of highway deicing salt in the U.S.; industrial and chemical salt products; grocery salt products; animal salt feeds; and water-softening and ice-melting salt products.

The company's 2,000 employees work in four mines and two refineries in the U.S., and a solar salt plant on the island of Bonaire, in the Netherlands Antilles.

International Salt reported record earnings in 1978, for the third consecutive year, although consolidated sales were below the 1977 level as a result of the late-1977 sale of most of the company's non-salt food division.

Assuming normal winter weather conditions, the U.S. market for dry salt is expected to remain stable in 1979.

Organon Inc.

Organon employs over 600 people at four plants and laboratories in the U.S. and Canada. The company manufactures and markets ethical pharmaceuticals and diagnostic products, as well as certain bulk pharmaceuticals and chemicals. Its acquisition of Aerojet Medical and Biological Systems in 1974 provided a research capability in diagnostic systems and instrumentation. During 1978 the company acquired Hospital Diet Products Corporation, a producer of nutritional formulas for hospitals.

Organon has achieved a significant share of individual pharmaceutical product markets, particularly in surgical muscle relaxants and anabolics. In the diagnostic field, Organon's pregnancy and mononucleosis tests are among the market leaders.

Organon achieved improved results in 1978 despite keen pricing competition and expanded costs of doing business in the highly regulated health products field, with earnings and sales both up moderately.

In June, 1978, Akzona and Akzo Pharma jointly purchased a 64% interest in CCI Life Systems, Inc., a U.S. manufacturer of kidney dialysis equipment in which Akzo Pharma had previously acquired a 7% interest. Following a cash tender offer for the remaining publicly held shares, CCI Life Systems became a 50-50 joint venture of Akzona and Akzo Pharma, which will operate independently under the name of Organon Teknika Corporation.

Outlook

Results at Akzona in 1978 presented an improving picture. After several years of unacceptable earnings, particularly in the fiber business, a positive trend began to appear and net income increased substantially over the 1977 level.

Indications for 1979 are encouraging, although a possible slowdown in the U.S. as a result of the government's anti-inflation program could restrict profitability.

For the longer term, Akzona sees opportunities of boosting its profit potential, both through the establishment of better cost/revenue ratios for its products and through acquisition of companies whose lines complement its chemical, pharmaceutical and technical products ranges.

The Company has confidence in the future of man-made fibers in the U.S. and in American Enka's ability to bolster its position in the market.

Principles of consolidation

The consolidated financial statements include Akzo N.V. and all companies in which Akzo N.V. or any of its majority subsidiaries has an interest, directly or indirectly, of more than 50% of the outstanding voting stock. 100% of the assets, the liabilities and the results of the consolidated companies are included. Minority interest in Group equity and Group income (loss) is shown separately.
The principal affiliated companies are listed on page 60 and following. A list of names and registered offices of affiliates, drawn up in conformity with article 2:320, paragraph 2, and using paragraph 3, subpara a, of the Dutch Civil Code, has been filed at the Trade Registry of Arnhem.

Principles of valuation and determination of income

The valuation principles for property, plant and equipment, investments in non-consolidated companies, other non-current assets, inventories, securities included in cash and marketable securities, and provisions are stated separately in the notes to the consolidated balance sheet.
Receivables, cash and liabilities are stated at face amounts, less such provisions for receivables as are deemed necessary. The parts of long-term receivables and long-term debt becoming due within one year are included under short-term receivables and other current liabilities, respectively.
Discount on borrowings is included under prepaid expenses and is charged against income over the period elapsing until maturity of the borrowings.
Preparation and start-up expenses of large investment projects are capitalized and charged against income, in five equal annual installments, after the facilities concerned have been put into service.
Other intangible assets, which include exploitation rights, are not capitalized; they are charged against operating income.
Purchased goodwill is charged directly against Group equity.

In the consolidated balance sheet, amounts in foreign currencies have been translated into guilders at rates virtually equal to the rates of exchange in force at year's end, except for the U.S. dollar convertible debentures, whose valuation in guilders is based on a rate of U.S. $ 1 = Hfl 3.60. In the consolidated statement of income, foreign currencies have been translated into guilders at rates of exchange fixed for each quarter as typical of the rates then applicable.
Foreign exchange differences are included in operating income, except for foreign exchange differences resulting from translation into guilders, at changed exchange rates, of stockholders' equities of companies outside the Netherlands; the latter differences are directly added to, or deducted from, Group equity.
The principal exchange rates employed in translating into guilders the financial statements of foreign Group companies are shown in the table below.

Effect of price rises on Group equity and income

The principles of valuation and determination of income used in the consolidated financial statements shown on pages 42 through 49 are based on historical cost. The effect of price rises on Group equity and income is shown on pages 50 and 51.

Net income (loss) per share of common stock

Net income per share of common stock is calculated by dividing net income (less the part thereof distributed in the form of dividends on priority and cumulative preferred stock and the bonuses to the members of the supervisory council) by the number of shares of common stock outstanding at December 31.
Net loss per share of common stock is calculated by dividing net loss by the number of shares of common stock outstanding at December 31.

Principal exchange rates

	unit	consolidated balance sheet Dec. 31, 1978	Dec. 31, 1977	consolidated statement of income 1978*	1977*
U.S. dollar	1	1.97	2.28	2.16	2.45
Deutsche mark	1	1.08	1.08	1.08	1.06
Pound sterling	1	3.99	4.36	4.15	4.29
French franc	1	0.47	0.49	0.48	0.50
Spanish peseta	100	2.82	2.82	2.82	3.26
Braz. cruzeiro	100	9.65	14.30	11.80	17.50

* average exchange rates

Consolidated balance sheet of the Akzo Group

after allocation of profit (1978) and loss (1977) to reserves; see notes on pages 45 through 48

in Hfl million	December 31, 1978		December 31, 1977	
non-current assets				
property, plant and equipment	3,360.0		3,576.4	
investments in non-consolidated companies	337.8		321.1	
other non-current assets	152.3		147.9	
		3,850.1		4,045.4
current assets				
inventories	1,901.7		1,920.4	
short-term receivables	1,992.4		1,882.3	
prepaid expenses	48.3		59.7	
cash and marketable securities	597.6		579.9	
		4,540.0		4,442.3
total assets		8,390.1		8,487.7
Group equity				
Akzo N.V. stockholders' equity	2,230.7		2,324.6	
minority interest in Group equity	397.1		414.6	
		2,627.8		2,739.2
long-term liabilities				
provisions	1,054.0		1,038.6	
long-term debt	2,276.1		2,496.1	
		3,330.1		3,534.7
current liabilities				
bank borrowings and overdrafts	386.5		347.3	
other current liabilities	2,045.7		1,866.5	
		2,432.2		2,213.8
total Group equity and liabilities		8,390.1		8,487.7

Consolidated statement of income of the Akzo Group

see notes on pages 48 and 49

in Hfl million		1978		1977
sales		10,665.9		10,433.2
operating costs				
salaries, wages and social charges	(3,394.6)		(3,276.9)	
depreciation	(486.2)		(493.9)	
other costs	(6,363.8)		(6,422.7)	
		(10,244.6)		(10,193.5)
operating income		421.3		239.7
interest		(248.5)		(245.2)
		172.8		(5.5)
taxes on operating income less interest		(112.9)		(64.9)
		59.9		(70.4)
equity in earnings of non-consolidated companies		27.8		34.7
Group income (loss) before extraordinary items		87.7		(35.7)
extraordinary items		(25.2)		(122.4)
Group income (loss)		62.5		(158.1)
of which minority interest		(38.2)		(8.4)
Akzo N.V. net income (loss)		24.3		(166.5)
net income (loss) before extraordinary items		49.2		(51.9)
extraordinary items	(25.2)		(122.4)	
of which minority interest	0.3		7.8	
		(24.9)		(114.6)
Akzo N.V. net income (loss)		24.3		(166.5)

	1978	1977
net income (loss) before extraordinary items, per common share of Hfl 20 par value, in Hfl	1.66	(1.75)
net income (loss) per common share of Hfl 20 par value, in Hfl	0.82	(5.63)

Consolidated statement of changes in financial position of the Akzo Group

see notes on page 49

in Hfl million		1978		1977*
working capital (excess of current assets over current liabilities) at January 1		2,228		2,327
source of funds				
Group income (loss) before extraordinary items	88		(36)	
items not affecting working capital:				
depreciation	486		494	
other	115		149	
		689		607
extraordinary items affecting working capital		(30)		(68)
funds from operations		659		539
disposal of participations	32		36	
working capital of consolidated companies disposed of	(16)		24	
		16		60
borrowings		390		289
issuance of stock by Group companies		3		2
		1,068		890
application of funds				
expenditures for property, plant and equipment		434		409
acquisitions	93		84	
working capital of new consolidated companies	(3)		(24)	
		90		60
other non-current assets		4		(12)
		528		457
repayment of borrowings		557		408
dividends paid to minority stockholders of Group companies		12		20
other		91		104
		1,188		989
working capital at December 31		2,108		2,228

* restated for comparison

Notes to the consolidated financial statements of the Akzo Group

General

Changes in consolidated companies

In 1978, Mayolande S.A. (France), Poliquíma Indústria e Comércio S.A. (Brazil) and Organon Teknika Corporation (U.S.) were included in consolidation. There were no other material changes in consolidation.

Consolidated balance sheet

Property, plant and equipment

Land is stated at cost with a revaluation, however, at January 1, 1969, of approximately Hfl 70 million for land acquired long ago. Other property, plant and equipment are stated at cost, less depreciation. Government subsidies, etc. are deducted from cost of acquisition.
Depreciation is calculated by the straight-line method based on estimated life, which in the majority of cases is 10 years for plant equipment and machinery and ranges from 20 to 30 years for buildings. In cases where the book value calculated in this way exceeded the value to the business, additional write-offs were made.
Furthermore, a provision of Hfl 86.2 million was deducted from the book value to cover additional write-downs, especially in the man-made fiber sector.
The table below shows the changes in 1978.

in Hfl million	total	land	buildings	plant equipment and machinery	means of transport	assets not used in the production process
situation at December 31, 1977						
cost of acquisition	9,503.0	213.2	1,950.6	6,967.0	109.0	263.2
depreciation	(5,821.6)		(882.8)	(4,672.2)	(74.4)	(192.2)
book value	3,681.4	213.2	1,067.8	2,294.8	34.6	71.0
provision for additional write-downs*	(105.0)					
	3,576.4**					
changes in book value						
changes in consolidated companies	17.5	5.0	0.5	10.4	0.9	0.7
capital expenditures	434.2	1.4	56.7	362.7	11.5	1.9
disposals	(42.5)	(8.6)	(16.5)	(8.9)	(3.1)	(5.4)
additional write-downs	(30.6)		(6.2)	(22.2)	(1.2)	(1.0)
depreciation	(486.2)		(63.8)	(404.3)	(11.0)	(7.1)
changes in exchange rates	(163.0)	(8.5)	(47.7)	(104.8)	(2.0)	–
other	35.4	(1.1)	14.4	22.4	0.9	(1.2)
total changes in 1978	(235.2)	(11.8)	(62.6)	(144.7)	(4.0)	(12.1)
situation at December 31, 1978						
cost of acquisition	9,409.1	201.4	1,914.7	6,947.0	103.8	242.2
depreciation	(5,962.9)		(909.5)	(4,796.9)	(73.2)	(183.3)
book value	3,446.2	201.4	1,005.2	2,150.1	30.6	58.9
provision for additional write-downs*	(86.2)					
	3,360.0**					

Projects under construction included in cost of acquisition and book value totaled Hfl 247.6 million at December 31, 1978 (at December 31, 1977: Hfl 234.1 million).

Purchase commitments (not included in the consolidated balance sheet) totaled Hfl 115.1 million at December 31, 1978 (at December 31, 1977: Hfl 143.7 million).

* in 1978, an amount of Hfl 31 million was used for additional write-downs, while an amount of Hfl 12 million was added to this provision

** including capitalized preparation and start-up expenses of Hfl 0.6 million at December 31, 1977 and Hfl 1.3 million at December 31, 1978

Investments in non-consolidated companies

This item includes the non-consolidated companies and the loans to these companies. Investments in non-consolidated companies are stated at the amount of Akzo's share in stockholders' equity, less provisions in the amount of Hfl 12 million (December 31, 1977: Hfl 6 million).
The calculation of stockholders' equity has been based as much as possible on the Akzo principles of valuation.
Loans to non-consolidated companies totaled Hfl 28.5 million (at December 31, 1977: Hfl 19.6 million).

in Hfl million		
situation at December 31, 1977		321.1
investments	41.6	
changes in loans	8.9	
		50.5
equity in 1978 earnings		43.6
dividends received		(34.2)
changes in exchange rates		(28.4)
other changes		(14.8)
situation at December 31, 1978		337.8

Other non-current assets

This item includes mainly long-term receivables (less Hfl 36.8 million for discounted receivables) and other assets that are not directly realizable. The latter are stated at cost or estimated value, whichever was lower.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is defined as full cost exclusive of interest, research expenditure and general administrative expense, taking into account the stage of processing. The cost of inventories has been accounted for using the FIFO formula. Provisions have been made for obsolescence and other risks.
In the valuation of inventories, profits arising as a result of transactions between consolidated companies have been eliminated.

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
raw materials and supplies	614.3	622.5
work in process	482.0	463.3
finished goods	805.4	834.6
	1,901.7	1,920.4

Short-term receivables

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
trade receivables	1,888.1	1,766.9
receivables from non-consolidated companies	60.2	76.9
other receivables	346.8	322.9
	2,295.1	2,166.7
of which discounted	302.7	284.4
	1,992.4	1,882.3

Prepaid expenses

This item includes Hfl 7 million in respect of discount on borrowings (at December 31, 1977: Hfl 10 million).

Cash and marketable securities

With few exceptions, securities included in this item are listed on stock exchanges. They are stated at cost or market value, whichever was lower.
The securities include 82,146 shares of Akzo N.V. common stock, which are stated at market value at December 31, 1978.

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
securities	61.1	43.0
short-term investments	378.1	379.0
cash on hand and in banks	158.4	157.9
	597.6	579.9

Group equity

in Hfl million	capital stock	capital surplus, paid in	other reserves	stock-holders' equity	minority interest	Group equity
situation at December 31, 1977	592.7	658.0	1,073.9	2,324.6	414.6	2,739.2
issuance of stock of Group companies to third parties					2.8	2.8
goodwill resulting from acquisition of companies			(17.1)	(17.1)	(3.2)	(20.3)
1978 Group income			24.3	24.3	38.2	62.5
dividends paid to minority stockholders of Group companies					(12.2)	(12.2)
changes in exchange rates			(146.7)	(146.7)	(46.9)	(193.6)
other changes			45.6	45.6	3.8	49.4
situation at December 31, 1978	592.7	658.0	980.0	2,230.7	397.1	2,627.8

At least Hfl 210 million of the capital surplus, paid in (at December 31, 1977: Hfl 210 million) can be considered free from income tax within the meaning of the Dutch 1964 Income Tax Law (Wet op de Inkomstenbelasting 1964).

Provisions

This item comprises provisions which do not refer to specific assets.

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
deferred taxes	355.4	372.4
pension rights	335.3	313.3
other provisions	363.3	352.9
	1,054.0	1,038.6

in Hfl million	
situation at December 31, 1977	1,038.6
changes in consolidated companies	4.0
changes in exchange rates	(26.1)
additions less amounts used	37.5
situation at December 31, 1978	1,054.0

Provisions for deferred taxes

This item comprises the tax liabilities, less the part expected to be settled in 1979. These liabilities have not been discounted to present value.
See also the note to taxes on income (page 49).

Provisions in respect of pension rights

With due observance of the statutory regulations and customs in the countries concerned, most Group companies have arranged appropriate pension schemes for their employees.
The present value of the ensuing liabilities is largely covered by:
- provisions, in the aggregate amount of Hfl 335 million, made by Group companies in their balance sheets;
- the funds accumulated in independent pension funds through payment of contributions.

The present value of the pension benefits not yet covered is approximately Hfl 200 million (at December 31, 1977: approximately Hfl 195 million).

Other provisions

This item includes provisions for liabilities whose extent cannot be ascertained with accuracy, and provisions for various operating risks. The amounts of the provisions are fixed in relation to the liabilities and risks concerned.
The principal provisions are for rationalization of activities and total Hfl 156 million (at December 31, 1977: Hfl 173 million). In 1978, Hfl 34 million was used, while Hfl 17 million was added.
The provisions also include amounts for liabilities in respect of guarantees, self-insurance, maintenance, and litigation.

Long-term debt

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
convertible debentures	252.0	252.0
other debentures	441.1	599.5
installment buying and leasing arrangements	48.5	49.8
private borrowings and other long-term debts	1,903.9	1,888.5
	2,645.5	2,789.8
current portion of long-term debt	369.4	293.7
	2,276.1	2,496.1

in Hfl million	
situation at December 31, 1977	2,496.1
changes in consolidated companies	10.0
changes in exchange rates	(63.6)
borrowings	390.1
repayment of borrowings	(556.5)
situation at December 31, 1978	2,276.1

The breakdown by country is shown in the following table.

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
the Netherlands	1,422.8	1,524.1
West Germany	217.6	269.4
United States	387.1	443.5
other countries	248.6	259.1
	2,276.1	2,496.1

Aggregate maturities after 1979 are as follows:

during the years 1980 through 1984	Hfl 1,519 million
during the years 1985 through 1989	Hfl 472 million
after 1989	Hfl 285 million
	Hfl 2,276 million

The average interest rate is 8.2% (1977: 7.9%).
Private borrowings and other long-term debts have been secured to an aggregate amount of Hfl 357 million (at December 31, 1977: Hfl 391 million) by means of mortgages, etc.

Convertible debentures *in Hfl million*

U.S. $ 70 million principal amount of 4¾% debentures Akzo N.V. 1969 convertible into Akzo N.V. common stock. These debentures mature not later than 1989.
The conversion price is Hfl 127.10 per share of Hfl 20 par value, based on an exchange rate of U.S. $ 1 = Hfl 3.60. The valuation of these debentures in guilders is based on the same exchange rate.
Repayment at par occurs in 10 equal annual installments, which will become due in the years 1980 through 1989. Full or partial repayment before maturity is permitted.
This borrowing includes the debentures held available for exchange of the remaining 4¾% convertible debentures Zout-Organon B.V. of U.S. $ 1,000 each; 62 of these debentures have not been exchanged. 252.0

Other debentures — *in Hfl million*

Currently outstanding principal amount of 4½% debentures Akzo N.V. 1962. These debentures are payable in 13 equal annual installments, the first of which became due on July 1, 1968. Redemption before maturity is permitted.	2.7
Currently outstanding principal amount of 11¼% debentures Akzo N.V. 1974. These debentures are payable in 10 approximately equal annual installments, the first of which became due on November 1, 1975. Redemption before maturity is not permitted.	45.0
Sfr 60 million principal amount of 7¾% debentures Akzo N.V. 1975. These debentures will be repaid in 7 annual installments of Sfr 2 million each in the years 1979 through 1985 and in 4 annual installments of Sfr 4 million each in the years 1986 through 1989. The remaining principal amount will be payable at May 9, 1990. Redemption before maturity is permitted as from May 9, 1981.	73.2
Hfl 125 million principal amount 9¼% debentures Akzo N.V. 1976. These debentures are payable in 5 approximately equal annual installments, the first of which will become due on July 15, 1982. Redemption before maturity is not permitted.	125.0
Profit-sharing employee debentures Akzo N.V.	2.6
Total other debentures Akzo N.V.	248.5
Currently outstanding principal amount of 6% debentures Koninklijke Zout-Ketjen 1965. These debentures are payable in 10 equal annual installments, the first of which became due on December 1, 1971. Redemption before maturity is permitted through 1979.	10.0
Currently outstanding principal amount of 4½% debentures Akzo Pharma B.V. 1961. These debentures are payable in 15 annual installments of Hfl 1 million each, in the years 1967 through 1981. Redemption before maturity is permitted.	3.0
Other debentures issued by consolidated companies	179.6
	441.1

Other current liabilities

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
suppliers	780.8	701.0
non-consolidated companies	30.8	36.1
taxes on income*	51.2	22.8
current portion of long-term debt	369.4	293.7
pensions	2.8	3.1
other liabilities and accrued charges	810.7	809.8
	2,045.7	1,866.5

* less tax receivables of Hfl 12 million (at December 31, 1977: Hfl 16 million)

Liabilities not shown in the balance sheet

With regard to non-consolidated companies and third parties, guarantees were given and liabilities contracted to an aggregate amount of Hfl 337 million (at December 31, 1977: Hfl 345 million), of which Hfl 162 million (at December 31, 1977: Hfl 222 million) direct by Akzo N.V.
In respect of leasehold, rent, etc., liabilities have been contracted for a number of years to an amount of approximately Hfl 53 million (at December 31, 1977: approximately Hfl 30 million) per year.

Consolidated statement of income

Sales

This item includes the total of amounts invoiced to third parties in respect of goods supplied and services rendered, less sales taxes and excise duties.

in Hfl million	1978	1977**
man-made fibers	3,567	3,598
chemical products	2,916	2,998
coatings	1,049	975
pharmaceuticals	1,211	1,099
consumer products	696	611
miscellaneous products	1,349	1,274
	10,788	10,555
intra-Group deliveries	(122)	(122)
	10,666	10,433

Depreciation

in Hfl million	1978	1977
buildings	63.8	65.5
plant equipment and machinery	404.3	406.1
means of transport	11.0	12.7
assets not used in the production process	7.1	9.6
	486.2	493.9

For the method of calculation of depreciation, see page 45.

Operating income (loss)

in Hfl million	1978	1977**
man-made fibers	10	(88)
chemical products	122	110
coatings	64	45
pharmaceuticals	140	133
consumer products	31	16
miscellaneous products	107	80
	474	296
non-allocated costs	(53)	(56)
	421	240

For man-made fibers operating income in 1978 was materially augmented by isolated gains. Overall, operating income was adversely affected by exchange losses on borrowings that are mainly included in non-allocated costs.

** restated for comparison

Interest

in Hfl million	1978	1977
interest paid	294.0	302.3
interest received, including income from securities, etc.	45.5	57.1
	248.5	245.2

Taxes on income

The taxes on earnings included in this item comprise current and deferred tax liabilities. From the losses incurred, taxes have been deducted to the extent that they can be offset against taxes charged to income in previous years. As a consequence, no deduction for taxes could be made in respect of losses in the amount of approximately Hfl 100 million (1977: Hfl 310 million, 1976: Hfl 250 million, and 1975: Hfl 290 million).
The taxes included in the statement of income break down as follows:

in Hfl million	1978	1977
taxes on operating income less interest	(112.9)	(64.9)
taxes on equity in earnings of non-consolidated companies	(15.6)	(11.6)
taxes included in extraordinary items	(0.7)	14.1
	(129.2)	(62.4)

Equity in earnings of non-consolidated companies

Under this heading are included the Group's equity in earnings of non-consolidated companies and interest received on loans granted to these companies, taking into account taxes on these items.

Extraordinary items

This item comprises important but isolated gains and losses not relating to normal operations; the taxes concerned have been taken into account.

in Hfl million	1978	1977
extraordinary gains	11.3	5.2
extraordinary losses	(36.5)	(127.6)
	(25.2)	(122.4)

The principal extraordinary losses in 1978 relate to additions to the provisions for rationalization of activities and to additional write-downs of property, plant and equipment.

Consolidated statement of changes in financial position

Working capital

in Hfl million	Dec. 31, 1978	Dec. 31, 1977
inventories	1,902	1,920
short-term receivables	1,992	1,882
prepaid expenses	48	60
cash and marketable securities	598	580
bank borrowings and overdrafts	(386)	(347)
other current liabilities	(2,046)	(1,867)
	2,108	2,228

Other items not affecting working capital

in Hfl million	1978	1977
disposal of property, plant and equipment	42	47
changes in provisions	55	51
retained earnings of non-consolidated companies	(9)	(6)
exchange differences relating to borrowings	27	57
	115	149

Extraordinary items affecting working capital

in Hfl million	1978	1977
extraordinary items	(25)	(122)
items not affecting working capital:		
additional write-downs	12	43
changes in provisions for rationalization of activities	(17)	11
	(30)	(68)

Disposal of participations

This item mainly relates to two hotel businesses in the Netherlands, and to certain participations of R.E.T.I. S.A. (France) and of Armak Company (U.S.).

Acquisitions

in Hfl million	1978	1977
investments in non-consolidated companies	51	51
acquisition of consolidated companies	42	33
	93	84

For 1978, acquisitions mainly relate to the purchase of CCI Life Systems, Inc. (U.S.), meanwhile renamed Organon Teknika Corporation, and to an increase of our interest in Mayolande S.A. (France) from 50 to 90%.

Other applications of funds

This item includes the effect on working capital of valuation differences arising from translation into guilders of the 1978 and 1977 balance sheet amounts of foreign companies at the rates of exchange in force at December 31 of the years concerned.

Effect of price rises on Group equity and income

Because of continued inflation in virtually all countries, the current value of property, plant and equipment and of investments in non-consolidated companies, included in non-current assets, is higher than is shown in the consolidated balance sheet. Hence, Group equity is correspondingly higher.

Operating income and net income are lower if operating costs are determined in relation to current prices. As no generally accepted method is available to show the effects of price rises on Group equity and income, we have calculated these effects in the manner set forth on page 51.

Condensed consolidated balance sheet

in Hfl million	December 31, 1978 on the basis of historical cost	December 31, 1978 on the basis of current value	December 31, 1977 on the basis of historical cost	December 31, 1977 on the basis of current value
non-current assets	3,850	5,031	4,046	5,176
current assets	4,540	4,540	4,442	4,442
total assets	8,390	9,571	8,488	9,618
Akzo N.V. stockholders' equity	2,231	2,803	2,325	2,870
minority interest	397	487	414	499
Group equity	2,628	3,290	2,739	3,369
liabilities	5,762	6,281	5,749	6,249
total Group equity and liabilities	8,390	9,571	8,488	9,618

Current value has been calculated at 1978 and 1977 prices, respectively.

Changes in stockholders' equity

in Hfl million		1978		1977
stockholders' equity on a current-value basis at January 1		2,870		3,193
net income (loss) before extraordinary items	(31)		(126)	
goodwill resulting from acquisition of companies	(17)		(12)	
increase in value of inventories	19		17	
restatement of provisions for deferred taxes	–		(59)	
other changes	(38)		(143)	
		(67)		(323)
stockholders' equity on a current-value basis at December 31		2,803		2,870

Other changes comprise the extraordinary items, the revaluation of non-current assets, and the effect of changes in exchange rates.

Operating income and Akzo N.V. net income (loss) before extraordinary items in Hfl million	operating income	1978 net income (loss) before extraordinary items	operating income	1977 net income (loss) before extraordinary items
income (loss) on the basis of historical cost	421	49	240	(52)
difference between current cost and historical cost in respect of:				
inventories	(44)	(19)	(36)	(17)
depreciation on property, plant and equipment, and equity in earnings of non-consolidated companies	(108)	(61)	(100)	(57)
income (loss) at 1978 and 1977 prices, respectively	269	(31)	104	(126)

Financial ratios	on the basis of historical cost	1978 on the basis of current value	on the basis of historical cost	1977 on the basis of current value
Group equity : liabilities	0.46	0.52	0.48	0.54
stockholders' equity per common share of Hfl 20 par value, in Hfl	75.35	94.69	78.52	96.95
net income (loss) before extraordinary items:				
per common share of Hfl 20 par value, in Hfl	1.66	(1.05)	(1.75)	(4.26)
as percentage of stockholders' equity	2.2	(1.1)	(2.2)	(4.4)
operating income as percentage of sales	3.9	2.5	2.3	1.0

Method of calculation

Non-current assets

The current value of land has generally been approximated on the basis of appraisals.
To calculate the current value of buildings, machinery and equipment, indexes from external sources in the principal countries of establishment were used. A decrease in value as a result of technological advances, estimated to be 1% annually for buildings and 2% annually for machinery and equipment, was deducted from the current values so obtained, where the indexes did not themselves reflect such a decrease.
In cases where the current value thus calculated exceeded the value to the business, the latter value was used. As a consequence, a substantial part of the buildings, machinery and equipment in Europe for the production of man-made fibers was not revalued.
The current values in foreign currencies have been translated into guilders at rates virtually equal to the rates of exchange in force at year's end.
For non-consolidated companies, an overall revaluation was made on the basis of the estimated current value of their property, plant and equipment.

Current assets

For inventories, no revaluation was made, as the value shown in the consolidated balance sheet does not differ materially from the current value of inventories.

Stockholders' equity

Stockholders' equity on a current-value basis has been determined by adding to stockholders' equity as shown in the consolidated balance sheet, the amount of the revaluation of non-current assets, less the relevant deferred taxes, calculated at an average rate of 50%, and after deduction of minority interest.

Operating income

Operating income at current prices has been calculated by deducting from the operating income shown in the consolidated statement of income:
- the inventory profits relating to the normal inventory level;
- the increase in the amount of depreciation, if depreciation is calculated on the current value of property, plant and equipment.

Net income

Net income (loss) before extraordinary items, at current prices, has been calculated by adjusting the net income (loss) before extraordinary items shown in the consolidated statement of income so as to take account of:
- the aforementioned inventory profits and the increase in depreciation, less the relevant taxes and minority interest;
- the effect of the increase in depreciation on property, plant and equipment on equity in earnings of non-consolidated companies.

Akzo N.V. balance sheet

after allocation of profit (1978) and loss (1977) to reserves; see notes on page 54

in Hfl million	December 31, 1978		December 31, 1977*	
affiliated companies				
consolidated companies	2,657.4		2,623.6	
non-consolidated companies	41.2		44.4	
loans to affiliated companies	1,239.5		1,347.7	
		3,938.1		4,015.7
short-term receivables and prepaid expenses				
receivables from affiliated companies	24.5		38.1	
other receivables	20.7		15.3	
prepaid expenses	10.2		13.7	
		55.4		67.1
cash and marketable securities				
marketable securities	2.6		2.1	
short-term investments	295.8		296.0	
cash on hand and in banks	24.7		16.8	
		323.1		314.9
total assets		4,316.6		4,397.7
stockholders' equity				
common stock	591.9		591.9	
cumulative preferred stock	0.8		0.8	
priority stock	0.0		0.0	
capital stock	592.7		592.7	
capital surplus, paid in	658.0		658.0	
other reserves	980.0		1,073.9	
		2,230.7		2,324.6
borrowings				
convertible debentures	252.0		252.0	
other debentures	248.5		378.0	
borrowings from affiliated companies	443.1		456.2	
other borrowings	970.8		830.7	
		1,914.4		1,916.9
current liabilities				
amounts due to affiliated companies	15.3		38.4	
bank borrowings and overdrafts	81.4		45.0	
other liabilities and accrued charges	74.8		72.8	
		171.5		156.2
total stockholders' equity and debts		4,316.6		4,397.7

* restated for comparison

Akzo N.V. statement of income and allocation of profit

see notes on page 54

in Hfl million	1978	1977
net income (loss) before extraordinary items	49.2	(51.9)
extraordinary items	(24.9)	(114.6)
net income (loss)	24.3	(166.5)
reservation, pursuant to art. 38, para 2, of the articles of association, deemed necessary to counteract as far as possible the effect of price rises on income	(24.3)	
profit available for allocation pursuant to art. 42 of the articles of association	–	

Provisions of the articles of association in re reservation and allocation of profit

Article 38, para 2
The balance sheet and the statement of income shall indicate such ordinary and extraordinary allowances for depreciation and reserves as the Board of Management in consultation with the Supervisory Council shall deem necessary.

Article 42

1

Profits as shown by the statement of income approved by the General Meeting of Shareholders shall, to the extent possible, be allocated in the following order:

a

to the holders of priority shares: sixty guilders per share, plus any accrued and unpaid dividends;

b

to the holders of cumulative preferred shares: sixty guilders per share, plus any accrued and unpaid dividends;

c

to the holders of ordinary shares: one guilder per share;

d

to each of the members of the Supervisory Council: one thousandth of the profit after deducting from such profit the amounts allocated in accordance with a, b and c hereof, subject to a maximum of thirty thousand guilders;

e

to the holders of ordinary shares: a dividend of such an amount per share as the profit, less the aforesaid payments and less such amounts as the General Meeting of Shareholders may decide to carry to reserves, shall permit.

2

The holders of ordinary shares are, to the exclusion of everyone else, entitled to allocations made from reserves accrued by virtue of the provision of paragraph 1 e of this article.

Arnhem, March 29, 1979

The board of management:

A.G. van den Bos
A.A. Loudon
J.A. Wolhoff
H. van Doodewaerd
A. van Driel
H. Kramers
H.J. Kruisinga
J. Veldman
H.J.J. van der Werf
M.D. Westermann
H.G. Zempelin

The supervisory council:

J.R.M. van den Brink
G. Kraijenhoff
Y. Scholten
S.C. Bakkenist
P.M.H. van Boven
A. Herrhausen
H.L. Merkle
H.J. Schlange-Schöningen
K. Schudel-van Zwanenberg
W.F.G.L. Starrenburg
J. de Vries
O. Wolff von Amerongen

Notes to Akzo N.V. balance sheet and statement of income

General

The investments in affiliated companies, as well as the other assets and liabilities, have been valued, and net income has been determined, in accordance with the principles of valuation and determination of income mentioned on page 41. Thus stockholders' equity and net income (loss) are equal to stockholders' equity and net income (loss) as shown in the consolidated financial statements on pages 42 and 43.

Non-consolidated companies

in Hfl million

situation at December 31, 1977	44.4
changes in participation	(9.2)
equity in 1978 earnings	9.3
dividends received	(2.2)
changes in exchange rates	(6.7)
other changes	5.6
situation at December 31, 1978	41.2

Capital stock

Authorized capital stock of Akzo N.V. is Hfl 1,030,048,000 and consists of 48 shares of priority stock, par value Hfl 1,000 per share; 30,000 shares of cumulative preferred stock, par value Hfl 1,000 per share; and 50 million shares of common stock, par value Hfl 20 per share.
Outstanding capital stock consists of 48 shares of priority stock, 760 shares of cumulative preferred stock, and 29,593,586 shares of common stock (of which 81,832 shares of common stock are held by the Company).

The priority stock is held by "Akzostichting" (Akzo Foundation), which is controlled by the members of the supervisory council and the board of management. The meeting of holders of priority stock has the right to draw up binding lists of nominees for appointment to the supervisory council and the board of management.
The accrued and unpaid dividends on the priority and cumulative preferred stock for the years 1975 through 1978 total Hfl 193,920.

Borrowings

For information on the convertible and other debentures, see the notes to the consolidated financial statements (pages 47 and 48).
Borrowings from affiliated companies have no fixed repayment schedule.
Interest on other borrowings averages 8.7% (1977: 8.7%).
The repayment schedule for the other borrowings is as follows:

in 1979	Hfl	168	million
during the years 1980 through 1984	Hfl	652	million
during the years 1985 through 1989	Hfl	141	million
after 1989	Hfl	10	million
	Hfl	971	million

Remuneration of supervisory council

For 1978 the members of the supervisory council were paid a total of Hfl 240,208 (1977: Hfl 215,625), which consisted entirely of fixed remuneration.
All members receive a remuneration.
At end-1978 the council numbered 12 members (end-1977: 11).

Auditors' report

We have examined the foregoing 1978 financial statements of Akzo N.V., Arnhem. For the purpose of our examination we also have made use of the reports of other independent auditors with respect to a number of subsidiaries.
In our opinion, these financial statements present fairly the financial position of Akzo N.V. at December 31, 1978, and the results of operations for the year then ended.

Arnhem, March 29, 1979

Klynveld Kraayenhof & Co.

Ten-year financial summary

The figures set forth below are based on historical cost; for figures based on current value, see page 57.

consolidated balance sheet at year's end	1978	1977	1976	1975	1974	1973*	1972*	1971	1970*	1969
in Hfl million										
property, plant and equipment	3,360	3,577	3,904	4,396	4,322	4,235	4,250	4,274	4,280	3,745
investments in non-consolidated companies	338	321	288	307	285	282	341	335	306	315
other non-current assets	152	148	162	125	175	155	130	140	143	124
non-current assets	3,850	4,046	4,354	4,828	4,782	4,672	4,721	4,749	4,729	4,184
inventories	1,902	1,920	1,949	2,113	2,562	1,641	1,615	1,664	1,581	1,458
short-term receivables	1,992	1,882	1,787	1,906	1,831	1,954	1,728	1,590	1,563	1,369
prepaid expenses	48	60	59	51	56	52	54	56	61	38
cash and marketable securities	598	580	611	539	524	840	645	616	493	656
current assets	4,540	4,442	4,406	4,609	4,973	4,487	4,042	3,926	3,698	3,521
total assets	8,390	8,488	8,760	9,437	9,755	9,159	8,763	8,675	8,427	7,705
capital stock	593	593	593	593	593	562	542	542	521	514
capital surplus, paid in	658	658	658	658	658	689	710	710	730	703
other reserves	980	1,074	1,377	1,733	2,223	2,036	1,813	1,740	1,867	1,764
stockholders' equity	2,231	2,325	2,628	2,984	3,474	3,287	3,065	2,992	3,118	2,981
minority interest in Group equity	397	414	486	541	565	573	570	610	536	503
Group equity	2,628	2,739	3,114	3,525	4,039	3,860	3,635	3,602	3,654	3,484
provisions	1,054	1,039	942	1,052	958	991	809	725	857	809
long-term debt	2,276	2,496	2,626	2,693	2,124	2,047	2,407	2,402	2,198	1,729
long-term liabilities	3,330	3,535	3,568	3,745	3,082	3,038	3,216	3,127	3,055	2,538
bank borrowings and overdrafts	386	347	310	308	410	162	223	273	270	237
other current liabilities	2,046	1,867	1,768	1,859	2,224	2,099	1,689	1,673	1,448	1,446
current liabilities	2,432	2,214	2,078	2,167	2,634	2,261	1,912	1,946	1,718	1,683
total Group equity and liabilities	8,390	8,488	8,760	9,437	9,755	9,159	8,763	8,675	8,427	7,705
invested capital**:										
of consolidated companies	5,620	5,953	6,394	6,963	6,836	6,616	6,510	6,394	6,403	5,707
in non-consolidated companies	338	321	288	307	285	282	341	335	306	315
total	5,958	6,274	6,682	7,270	7,121	6,898	6,851	6,729	6,709	6,022
property, plant and equipment										
capital expenditures	434	409	413	745	799	549	555	943	1,035	742
depreciation	486	494	533	519	531	540	527	526	472	397
ratios										
sales : invested capital	1.90	1.75	1.68	1.40	1.57	1.42	1.26	1.26	1.13	1.12
Group equity : liabilities	0.46	0.48	0.55	0.60	0.71	0.73	0.71	0.71	0.77	0.83
Group equity : non-current assets	0.68	0.68	0.72	0.73	0.84	0.83	0.77	0.76	0.77	0.83
current assets : current liabilities	1.87	2.01	2.12	2.13	1.89	1.98	2.11	2.02	2.15	2.09

development of stockholders' equity, 1969-1978 (in Hfl million)	1969-1978	1978	1977	1976	1975	1969-1974
stockholders' equity at January 1	2,519	2,325	2,628	2,984	3,474	2,519
issuance of stock, including capital surplus	405					405
stock dividends	208					208
retained earnings	321	24	(166)	(153)	(440)	1,056
goodwill resulting from acquisition of companies	(444)	(17)	(12)	(4)	(27)	(384)
change in exchange rates	(743)	(147)	(91)	(213)	(48)	(244)
other changes	(35)	46	(34)	14	25	(86)
stockholders' equity at December 31	2,231	2,231	2,325	2,628	2,984	3,474

* based on cash dividend

** Group equity plus long-term liabilities

consolidated statement of income	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969
in Hfl million										
sales	10,666	10,433	10,750	9,717	10,761	9,418	8,235	8,056	7,249	6,366
salaries, wages and social charges	(3,395)	(3,277)	(3,277)	(3,109)	(3,144)	(2,764)	(2,478)	(2,354)	(2,073)	(1,670)
depreciation	(486)	(494)	(533)	(519)	(531)	(540)	(527)	(526)	(472)	(397)
other costs	(6,364)	(6,422)	(6,635)	(6,106)	(6,314)	(5,350)	(4,645)	(4,535)	(4,064)	(3,498)
operating income (loss)	421	240	305	(17)	772	764	585	641	640	801
interest	(248)	(245)	(249)	(234)	(147)	(147)	(172)	(165)	(112)	(61)
taxes on operating income less interest	(113)	(65)	(59)	58	(226)	(283)	(181)	(238)	(259)	(375)
equity in earnings of non-consolidated companies	28	34	24	13	42	42	29	23	31	28
Group income (loss) before extraordinary items	88	(36)	21	(180)	441	376	261	261	300	393
extraordinary items	(25)	(122)	(167)	(253)	8	(3)	7	4	19	(5)
Group income (loss)	63	(158)	(146)	(433)	449	373	268	265	319	388
of which minority interest	(39)	(8)	(7)	(7)	(69)	(82)	(51)	(56)	(58)	(64)
net income (loss)	24	(166)	(153)	(440)	380	291	217	209	261	324
profit available for allocation	–	–	–	–	210	241	188	184	241	308
distributed income	–	–	–	–	118	107*	97*	98	104*	102
common stock, in thousands of shares of Hfl 20 par value	29,594	29,594	29,594	29,594	29,594	28,062	26,989	26,989	25,958	25,590
number of employees	83,200	84,400	91,100	98,200	105,400	105,800	101,000	104,500	100,800	100,300
per common share of Hfl 20 par value, in Hfl										
net income (loss) before extraordinary items	1.66	(1.75)	0.20	(6.53)	12.55	10.48	7.70	7.62	9.22	12.80
net income (loss) after extraordinary items	0.82	(5.63)	(5.16)	(14.86)	12.83	10.37	8.02	7.72	10.01	12.65
profit available for allocation	–	–	–	–	7.08	8.59	6.94	6.81	9.24	12.02
dividend	–	–	–	–	4.00	3.80	3.60	3.60	4.00	4.00
of which, at stockholder's option, in common stock						2.60	2.40		2.80	
number of shares entitling holder to one new share						18	25		25	
stockholders' equity	75.35	78.52	88.78	100.80	117.36	117.08	113.49	110.78	120.06	116.40
ratios										
operating income (loss) as percentage of sales	3.9	2.3	2.8	(0.2)	7.2	8.1	7.1	8.0	8.8	12.6
personnel costs as percentage of sales	31.8	31.4	30.5	32.0	29.2	29.3	30.1	29.2	28.6	26.2
net income (loss) before extraordinary items, as percentage of stockholders' equity	2.2	(2.2)	0.2	(6.5)	10.7	9.0	6.8	6.9	7.7	11.0
net income (loss) after extraordinary items, as percentage of stockholders' equity	1.1	(7.2)	(5.8)	(14.7)	10.9	8.9	7.1	7.0	8.4	10.9

* of which Hfl 35 million (1973), Hfl 33 million (1972) and Hfl 32 million (1970) in cash

consolidated statement of changes in financial position	1978	1977*	1976	1975	1974
in Hfl million					
working capital (excess of current assets over current liabilities) at January 1	2,228	2,327	2,441	2,339	2,226
source of funds					
funds from operations	659	539	503	370	1,024
borrowings	390	289	496	826	422
funds retained through payment of Akzo N.V. final 1973 dividend in stock					72
miscellaneous	19	62	41	17	20
	1,068	890	1,040	1,213	1,538
application of funds					
expenditures for property, plant and equipment	434	409	413	745	799
acquisitions	90	60	50	92	65
other non-current assets	4	(12)	41	(43)	20
repayment of borrowings	557	408	446	277	306
dividends paid to stockholders of Akzo N.V.	–	–	–	–	118
miscellaneous	103	124	204	40	117
	1,188	989	1,154	1,111	1,425
working capital at December 31	2,108	2,228	2,327	2,441	2,339

figures on a current-value basis	1978	1977	1976	1975	1974
Group equity, in Hfl million	3,290	3,369	3,764	4,225	4,559
stockholders' equity, in Hfl million	2,803	2,870	3,193	3,585	3,928
Group equity : liabilities	0.52	0.54	0.61	0.64	0.74
stockholders' equity, per common share of Hfl 20 par value, in Hfl	94.69	96.95	107.87	121.14	132.73
operating income (loss)					
in Hfl million	269	104	77	(315)	402
as percentage of sales	2.5	1.0	0.7	(3.2)	3.7
net income (loss) before extraordinary items					
in Hfl million	(31)	(126)	(125)	(342)	211
per common share of Hfl 20 par value, in Hfl	(1.05)	(4.26)	(4.22)	(11.56)	7.13
as percentage of stockholders' equity	(1.1)	(4.4)	(3.9)	(9.5)	5.4

* restated for comparison

product group statistics*	1978	1977	1976	1975	1974	1973	1972	1971	1970	1969
in Hfl million										
sales										
man-made fibers										
textile uses	2,633	2,590	2,834	2,880	3,386	3,497	3,060	3,069	2,851	2,746
industrial uses	934	1,008	970	827	1,142	901	738	771	710	580
	3,567	3,598	3,804	3,707	4,528	4,398	3,798	3,840	3,561	3,326
chemical products										
salt and heavy chemicals	1,794	1,854	1,722	1,428	1,653	1,204	1,147	1,030	973	627
specialty chemicals	1,122	1,144	1,061	824	991	753	645	622	403	315
	2,916	2,998	2,783	2,252	2,644	1,957	1,792	1,652	1,376	942
coatings	1,049	975	941	836	772	638	575	535	524	340
	3,965	3,973	3,724	3,088	3,416	2,595	2,367	2,187	1,900	1,282
pharmaceuticals	1,211	1,099	1,071	971	819	706	624	579	471	374
consumer products	696	611	789	779	679	539	490	502	596	747
miscellaneous products	1,349	1,274	1,362	1,172	1,319	1,180	956	948	721	637
	3,256	2,984	3,222	2,922	2,817	2,425	2,070	2,029	1,788	1,758
total	10,788	10,555								
intra-Group deliveries	(122)	(122)								
sales to third parties	10,666	10,433	10,750	9,717	10,761	9,418	8,235	8,056	7,249	6,366
operating income (loss)										
man-made fibers	10	(88)	(142)	(326)	223	390	231	371	325	549
chemical products	122	110								
coatings	64	45								
	186	155	182	80	317	168	172	136	201	152
pharmaceuticals	140	133								
consumer products	31	16								
miscellaneous products	107	80								
	278	229	265	229	232	206	182	134	114	100
total	474	296								
non-allocated costs	(53)	(56)								
operating income (loss)	421	240	305	(17)	772	764	585	641	640	801
operating income (loss), as percentage of sales										
man-made fibers	0.3	(2.4)	(3.7)	(8.8)	4.9	8.9	6.1	9.7	9.1	16.5
chemical products	4.2	3.7								
coatings	6.1	4.6								
	4.7	3.9	4.9	2.6	9.3	6.5	7.3	6.2	10.6	11.9
pharmaceuticals	11.6	12.1								
consumer products	4.5	2.6								
miscellaneous products	7.9	6.3								
	8.5	7.7	8.2	7.8	8.2	8.5	8.8	6.6	6.4	5.7
total	3.9	2.3	2.8	(0.2)	7.2	8.1	7.1	8.0	8.8	12.6

For the years 1969 through 1976, intra-Group deliveries and non-allocated costs are deducted from sales and operating income, respectively, of the several product groups. This does not materially affect the comparability with 1978 and 1977.

* consolidated companies

geographical statistics*	1978	1977	1976	1975	1974	1973
in Hfl million						
EEC countries						
sales by area of destination						
the Netherlands	1,289	1,284	1,295	1,218	1,302	1,126
West Germany	1,966	1,932	2,056	1,939	2,115	1,925
other EEC countries	2,348	2,143	2,198	2,020	2,229	1,904
	5,603	5,359	5,549	5,177	5,646	4,955
sales by area of origin						
the Netherlands	3,623	3,585	3,706	3,237	3,554	2,903
West Germany	2,825	2,658	2,727	2,547	2,819	2,520
other EEC countries	1,161	1,055	1,003	994	1,124	1,093
	7,609	7,298	7,436	6,778	7,497	6,516
invested capital						
the Netherlands	2,053	2,156	2,497	2,417	2,268	2,235
West Germany	1,546	1,653	1,588	1,761	1,856	1,811
other EEC countries	420	393	262	503	595	593
	4,019	4,202	4,347	4,681	4,719	4,639
number of employees						
the Netherlands	24,300	25,400	27,600	29,700	30,600	29,700
West Germany	21,300	21,800	23,800	26,000	28,800	28,500
other EEC countries	10,200	10,000	11,000	13,400	14,700	14,400
	55,800	57,200	62,400	69,100	74,100	72,600
rest of Europe						
sales by area of destination	1,384	1,473	1,646	1,432	1,531	1,302
sales by area of origin	573	561	712	685	691	617
invested capital	246	263	403	500	475	438
number of employees	6,000	6,300	7,600	7,800	8,100	8,200
North America						
sales by area of destination	2,315	2,334	2,292	2,018	2,318	2,182
sales by area of origin	2,027	2,133	2,147	1,909	2,163	2,008
invested capital	1,129	1,289	1,423	1,543	1,392	1,326
number of employees	15,600	15,300	15,500	16,100	17,100	20,100
rest of the world						
sales by area of destination	1,364	1,267	1,263	1,090	1,266	979
sales by area of origin	457	441	455	345	410	277
invested capital	226	199	221	239	250	213
number of employees	5,800	5,600	5,600	5,200	6,100	4,900

* consolidated companies

Principal companies of the Akzo Group

December 31, 1978

Percentages of participation are only stated for companies in which Akzo N.V. holds a direct and/or indirect interest of less than 95% in voting stock.

Enka, Wuppertal — **W. Germany**

man-made fibers, machinery, dialysis membranes, plastics, non-wovens, film, various industrial products

	Enka B.V., Arnhem	Netherlands
	Akzo Plastics B.V., Arnhem	Netherlands
	Enka AG, Wuppertal	W. Germany
	Barmag Barmer Maschinenfabrik AG, Remscheid-Lennep with establishments in Switzerland[a], U.S.A., Brazil[a], and Hong Kong	W. Germany
	Italenka S.p.A., Milan	Italy
71 –	British Enkalon Ltd, Leicester	U.K.
42[b] –	Brand-Rex Ltd, Glenrothes	U.K.
93 –	Erste Österr. Glanzstoff-Fabrik AG, Vienna	Austria
57 –	La Seda de Barcelona S.A., Barcelona	Spain
44 –	Cyanenka S.A., Prat de Llobregat	Spain
40 –	Fibras Químicas S.A., Monterrey	Mexico
40 –	Petroquímica Sudamericana S.A., Buenos Aires	Argentina
40 –	Hilanderías Olmos S.A., Buenos Aires	Argentina
40 –	Hilanderías Beccar S.A., Buenos Aires	Argentina
51 –	Polyenka S.A., Indústria Química e Têxtil, São Paulo	Brazil
45 –	COBAFI Companhia Bahiana de Fibras S.A., Camaçari	Brazil
48 –	Enka de Colombia S.A., Medellin	Colombia
48 –	Enkador S.A., Quito	Ecuador
39 –	Century Enka Ltd, Calcutta	India
29 –	Nichemtex Industries Ltd, Lagos	Nigeria

Akzo Zout Chemie, Hengelo (O) — **Netherlands**

salt, chlorine, alkali products, petrochemicals

	Akzo Zout Chemie Nederland B.V., Hengelo	Netherlands
50 –	Methanol Chemie Ned. v.o.f., Delfzijl	Netherlands
35 –	Delamine B.V., Delfzijl	Netherlands
	Norddeutsche Salinen GmbH, Stade	W. Germany
50 –	Elektro-Chemie Ibbenb. GmbH, Ibbenbüren	W. Germany
	Konezo, div. of Akzo België N.V., Brussels	Belgium
50 –	Dansk Salt I/S, PR Mariager	Denmark
	Companhia Industrial do Rio Grande do Norte (CIRNE), Macau	Brazil
50 –	Denak K.K., Tokyo	Japan
42 –	Holland Electro Chemical Industries (Pty) Ltd, Johannesburg	South Africa

Akzo Chemie, Amersfoort — **Netherlands**

process chemicals and additives for industries producing and processing plastics and elastomers; organic chemicals, industrial chemicals, glass fibers

	Akzo Chemie Nederland B.V., Amersfoort	Netherlands
60 –	Ketjen Carbon B.V., Rotterdam	Netherlands
50 –	Cyanamid-Ketjen Katalysator B.V., Amsterdam	Netherlands
33 –	Silenka B.V., Hoogezand	Netherlands
	Akzo Chemie GmbH, Düren	W. Germany
67 –	Carbosulf Chemische Werke GmbH, Cologne	W. Germany
67 –	Rhodanid Chemie GmbH, Cologne	W. Germany
	Akzo Chemie, division of Akzo België N.V., Mons	Belgium
50 –	Amdic S.A., Mons	Belgium
50 –	Stikstofderivaten N.V., Mons	Belgium
	Akzo Chemie France S.à.r.l., Compiègne	France
	Akzo Chemie Italia S.p.A., Arese	Italy
	Akzo Chemie U.K. Ltd, London	U.K.
	Interstab Chemicals Inc., N. Brunswick, New Jersey	U.S.A.
	Poliquíma Indústria e Comércio S.A., São Paulo	Brazil
50 –	Nippon Ketjen K.K., Tokyo	Japan
50 –	Kayaku Noury K.K., Tokyo	Japan
50 –	Japan Interstab K.K., Tokyo	Japan
50 –	Lion Akzo Co. K.K., Tokyo	Japan
50 –	Akulu Chemicals (Pty) Ltd, Isithebe	South Africa

Akzo Coatings, Amstelveen — **Netherlands**

paints, stains, synthetic resins, adhesives

	Sikkens B.V., Sassenheim	Netherlands
	Koninklijke Talens B.V., Apeldoorn	Netherlands
	Kunstharsfabriek Synthese B.V., Bergen op Zoom	Netherlands
	Deutsche Akzo Coatings GmbH, Stuttgart with establishment in Austria	W. Germany
	Akzo Coatings Belgium N.V., Ternat	Belgium
	Astral S.A., Paris with establishments in Morocco[a], Tunisia[a], Senegal[a], Ivory Coast[a] and Cameroun[a]	France
48 –	Dacral S.A., Paris	France
	Akzo Coatings Italia S.p.A., Mornago	Italy
28 –	Ivanow S.A., Barcelona	Spain
49 –	Miluz S.A.I.C.I.F., Buenos Aires	Argentina
	R. Montesano S.A. – Tintas Wanda, São Paulo	Brazil
55 –	Metropolitan Paint Factory Ltd, Bangkok	Thailand

a participation less than 95%

b affiliate of British Enkalon Ltd (60%) and Brand-Rex Co. (40%); total participation of Akzo N.V.: 69%

Akzo Pharma, Oss **Netherlands**

ethical drugs
(Organon International B.V., Oss),
hospital supplies and equipment
(Organon Teknika B.V., Oss),
non-prescription drugs
(Chefaro International B.V., Rotterdam),
raw materials for the pharmaceutical industry
(Diosynth B.V., Oss),
veterinary products
(Intervet International B.V., Boxmeer),
crop protection products
(AAgrunol B.V., Groningen)

Sales offices or production plants of one or more of the above companies are established in:

- the Netherlands, West Germany, Belgium, France, Italy, United Kingdom, Republic of Ireland, Denmark, Norway, Sweden, Finland, Switzerland, Spain, Portugal, Greece, Turkey
- United States[a]
- Mexico, Argentina, Brazil, Colombia, Ecuador, Venezuela
- Lebanon, Iran[a], Bangladesh[a], India[a], Pakistan[a], Thailand, Indonesia[a], Philippines, Hong Kong, Japan[a]
- Australia, New Zealand
- Morocco, Zaire, South Africa[a]

Akzo Consumenten Produkten, The Hague **Netherlands**

detergents and cleaning products, health and body-care products, foodstuffs

	Kortman & Schulte B.V., Dordrecht	Netherlands
	Otarès B.V., Enschede	Netherlands
50 –	Grada Producten B.V., Amsterdam	Netherlands
	Recter B.V., Veenendaal	Netherlands
	Aerofako B.V., Apeldoorn	Netherlands
	Kon. Eau de Colognefabriek J.C. Boldoot B.V., Apeldoorn	Netherlands
	Kon. Fabr. T. Duyvis Jz. B.V., Zaanstad	Netherlands
	Rotterdamsche Margarine Industrie J.M. Zwerver B.V., Vlaardingen	Netherlands
	Kortman, division of Akzo België N.V., Brussels	Belgium
90 –	Mayolande S.A., Seclin	France
	A/S Blumøller, Odense	Denmark
	Tomten A/S, Sandvika	Norway

66 – **Akzona Inc., Asheville, North Carolina** **U.S.A.**

man-made fibers, specialty chemicals, leather, wire and cable products, salt, pharmaceuticals, various industrial products

American Enka Co., Enka, North Carolina	U.S.A.
Armak Co., Chicago, Illinois with establishment in Canada	U.S.A.
Armira Corp., Sheboygan, Wisconsin	U.S.A.
Brand-Rex Co., Willimantic, Connecticut with establishments in United Kingdom[b] and Canada	U.S.A.
International Salt Co., Clarks Summit, Pennsylvania with establishments in Canada and the Netherlands Antilles	U.S.A.
Organon Inc., West Orange, New Jersey with establishment in Canada	U.S.A.

Other companies

19 –	N.V. Verenigde Instrumentenfabrieken Enraf-Nonius, Delft (medical equipment, etc.)	Netherlands
	Akzo Engineering B.V., Arnhem	Netherlands
	Feldmühle A.G., Rorschach (adhesive tape)	Switzerland

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