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Submission No.42.....

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14th April 2005

The Secretary
House of Representatives
Standing Committee on Science and Innovation
Parliament House
CANBERRA ACT 2600

Dear Secretary,

Re The House of Representatives
Standing Committee on Science and Innovation
Inquiry into pathways to technological innovation

Please allow me to give a brief background of myself to provide a context for my comments on the terms of reference of the inquiry.

My early formal qualifications are in chemical engineering and I held a position with the CSIRO before I joined a Melbourne-based firm of patent attorneys. In 1975 I took a position with the Australian Patents, Trade Marks and Designs Offices (as it was then called; now called IP Australia) and I was an employee, for all but three years, of the Offices from 1975 until 1990. During my years with the Offices I held several positions including examiner of patents, but undoubtedly the most important benefit I obtained from employment at the Offices was the thorough, detailed, extensive and ongoing training in all aspects, national and international, of the administration, maintenance and development of intellectual property regimes.

In 1990, having completed a Masters Degree in Intellectual Property Law at London University, I moved to the private sector as Intellectual Property Manager with the Sydney-based manufacturing enterprise: Memtec Limited.

The story of Memtec Limited is most interesting and it is particularly instructive in relation to the many aspects of commercialization of technology. A particular feature of Memtec at the time I joined the company was the dynamism of the organisation which I attribute to the type of personnel employed by the company.

The company came into existence as a public company in August 1983. In October 1984 the company listed on the Australian Stock Exchange and the capital raising was moderately successful. A further rights issue in October 1987 raised \$116 million in May 1988 which enabled the acquisition of filtration businesses in USA, Japan and Europe and the expansion of the Memtec membrane filtration and separations business overseas.

The details of Memtec and the technology upon which the enterprise was based, the relationships with technology owners and licensees, is well documented in the Memtec Limited Prospectus dated 10 February 1984 (copy enclosed) and subsequent annual reports. I will not reproduce the details here. However, I would like to highlight certain aspects of the Memtec story.

- Patents for inventions were very important in the protection and the management of the development of the membrane technology which formed the core of the equipment designed by Memtec for industrial filtration. Patents enabled licensing arrangements to be put in place between various entities so that the circumstances of use of inventions, ownership thereof, rights in future innovations, payments of royalties, company and individual responsibilities, etc. were clear. Patents were also a fundamental aspect of Memtec's approach to the financial market for funds.
- Employees possessing the highest levels of ability and expertise in different fields were recruited or otherwise sourced from the Australian and overseas labour markets to carry out particular tasks for Memtec. A feature of employment with Memtec was the availability of the Memtec Share Purchase Plan. At the time employee share plans were a relatively new development in Australian start-up enterprises and the employee share plan was very definitely one of the attractions of working at Memtec.
- Memtec established a strong R&D team wherein the personnel, not only possessed excellent knowledge and scientific credentials, but also experience in private enterprise development and growth. In other words the R&D personnel had a "commercial orientation" rather than an "academic" one.
- Government grants for R&D were a very important source of funding for Memtec R&D in the early years. Thereafter, and once sales began to be made and revenue started to flow, I believe that government grants began to be less important.
- Memtec out-sourced a lot of information regarding accounting practices including taxation issues and issues associated with accounting for R&D expenditure, and many other matters, from a very capable accounting firm. Subsequently some of those out-sourced functions were brought in-house at Memtec.
- Memtec had all its patents prepared and filed by an Australian patent attorney firm and as already mentioned, patents were a key part of the establishment of Memtec Limited. In 1990 Memtec employed an Intellectual Property Manager to oversee the patenting and protection of Memtec inventions, as well as manage other IP issues and assets of the company.
- In Australia, the very poor 'take-up' of Memtec membrane technology as applied to water filtration and treatment in particular, was extremely disappointing. The lack of support from the Australian market created severe difficulties for the business at a crucial time in Memtec's evolution and growth.

Indeed the Memtec story makes an excellent case study of the commercialisation of technology.

Below I have provided comments directed at the specific terms of reference of the inquiry. I have not addressed all terms of reference since, whilst I have some experience and a view on those terms, my expertise is in the acquisition, management and protection of IP rights.

intellectual property and patents

I am a firm believer in the proposition that: all commercialization ventures involving technology must have patent protection for the inventions upon which the business is based. However, there is much intellectual property in a commercial enterprise, and managers are sometimes not fully aware of the nature and scope of intellectual property which the enterprise embodies.

IP of a commercial enterprise includes: inventions; business information such as suppliers agreements and the level of fees and charges, market plans, estimates and projections; agreements with contractors and employees; financial data and customer lists and requirements; trade and service marks designating the products and services offered by the enterprise; copyright in drawings, brochures and technical literature and operating manuals; trade secrets relating to processes and manufacturing know-how; confidential information of various types; business names and domain names; computer software; work instructions and standard operating procedures. Everything an enterprise creates develops, establishes for the benefit of the business should be considered as IP and should be protected.

An enterprise will often be established with a small IP base. That base may comprise a single invention for which a patent application has been filed in Australia, a registered trademark under which a product is sold or a service is provided, and a registered business name and/or domain name. As the enterprise grows commercially, creates inventions, makes innovations and develops structures and procedures which characterize the way the enterprise carries on business (and indeed maintains its 'competitive advantage') the amount of IP in the enterprise grows. Furthermore, it is of the greatest importance that excellent, detailed records of company IP are maintained as disputes over IP usually arise several years after the enterprise has been established and, it will come as no surprise, at a time when the enterprise is doing extremely well commercially.

Enterprises must manage this growth in IP as well as be aware of the various forms, scope and nature of the IP and how it can be leveraged for the benefit of the company. Management must be able to recognize the different types of IP as each arises or is created and must know how to handle that IP to protect it and prevent the IP from becoming 'public knowledge'.

In order to maximize the benefits from the IP being created by an enterprise, a person within the enterprise should be designated to take corporate responsibility for the management of IP. Sometimes this responsibility is assigned to the company general counsel or the managing director. The person need not be a lawyer or a patent attorney but the person designated must possess an intimate knowledge of the company, its commercial objectives and direction, and corporate priorities, as well as a thorough understanding of the technology (or technologies) which the company is commercializing.

Ideally, the company should engage a suitably qualified and knowledgeable person whose sole responsibility is to manage the IP assets of the company, in particular, to interface with the company's patent attorney and be able to provide precise

instructions to the firm as required. Attached is a list of functions for which the IP manager should be responsible.

Some of the abovementioned IP is registrable with the relevant government agency and some is not. Some of the IP is easily protectable and some is not. The rights in some of the IP are expensive to obtain and some is not at all expensive. All IP rights are frightfully expensive to enforce against infringers of those rights.

Enforcement of IP rights through the legal process and courts is a very expensive, time and resource consuming, and relatively unpredictable compared to other aspects of managing a commercial enterprise. Thus litigation of IP rights, I suggest from my experience, should be the means of settlement of an IP dispute to which a company turns when all other means have failed. Furthermore, I suggest this is so whether management *believes its product is or is not infringing*.

Without doubt the most expensive of IP rights to obtain and enforce are patents for inventions. However, patents are also the most valuable of the IP rights of a company because of the many aspects of patents which can be utilised by the enterprise.

As mentioned, there is the protection aspects of patents, but other aspects of patents of particular benefit to a company include: basis for capital raising and other financial dealings; licensing (especially cross-licensing) to other companies or overseas associates; various commercial agreements including the establishment of joint ventures; employee incentives and rewards; publicity and marketing; product promotion; applications for government grants and other funding. Issued patents which have been granted to the enterprise are indicative of a uniqueness of the business of the enterprise and its product or service, and patents indicate to the market that the enterprise has a monopoly position in a product/service in that market.

As already alluded to, I believe that patents are a key element underpinning a commercial enterprise. However, management of the enterprise must be confident that those patents possess 'a high presumption of validity'. This phrase is widely used in legal parlance and has a special meaning for managers, owners and those charged with commercialisation of IP. It means that the claims of the company's patents are as valid as can be expected when assessed against the background of existing patents and knowledge in the technical field. For example, in the field of membrane filtration, the claims to a membrane filtration process are directed to the protection of a unique method of manufacturing the membrane and there are no identical processes or knowledge of which the company is aware which would render those claims invalid.

This factor of validity is so very important to the company and its commercial objectives. Management needs to be able to take decisions, comfortable in the knowledge that the claims in the company's patents are sound in every aspect and are thus capable of withstanding any challenge brought against those claims. I have listed this activity of ensuring the high validity of claims as one which is the responsibility of the person in the company who is responsible for managing company IP.

A case¹ in point where the claims of a patent were found to be invalid and where the consequences were significant for the business, is the Rescare case. Rescare Ltd,

¹ Anaesthetic Supplies Pty Ltd v Rescare Ltd [28IPR383]

now named ResMed Limited, to the credit of all involved in that company, managed to overcome the difficulties associated with the revocation of one of its key patents coming as it did at the early stages of the company's development and grow to be a great Australian commercial success.

research and market linkages

It is my view that linkages (herein after "relationship(s)") between an enterprise and the research community, in which I include: universities, research institutes, CSIRO, etc., can be beneficial to the enterprise. However, for the relationship to be beneficial it must be managed and maintained by the enterprise. This is clear to me from two very different instances of relationships which Memtec established with one Australian university and one US university. In both the instances below-described, the relationship was based on a written agreement which was signed on behalf of both parties.

In the case of the relationship with the Australian university, the management of the relationship was at one time very sound and fruitful due to the efforts of a particular scientist at Memtec who was charged with attending meetings, monitoring projects and outcomes, ensuring reports were prepared and budgets were not exceeded. When that person moved on through the organisation the handling of the relationship with the Australian university became fragmented between various people and departments within Memtec. As a consequence communications with the university were inconsistent and confusing.

On the other hand, Memtec's relationship with the US university was very well managed by a senior manager employed at Memtec's US subsidiary. I cannot recall a single instance where either party raised concerns about the relationship. Furthermore, the relationship proved technically and commercially beneficial to the US subsidiary.

In recent times the company has been closely involved with the "Co-op Program" of the University of NSW, not in the manner just described but in a capacity providing work experience for engineering students from UNSW. This involvement has been extremely beneficial for the company as it has, as well as providing resources for work on various technical problems, enabled the evaluation and assessment of students as potential employees of the company, in an industrial environment working on "real" projects and technical problems. Quite possibly this is the only workable relationship between a company and a university....but I do not think so.

In my opinion some of the problems which arise in the relationship between commercial enterprises and universities, and I suggest that this is probably the main reason for problems, is the completely different expectations, culture, agenda, call it what you will, of each party to the relationship. For example, researchers at universities aim to publish results of research during and after the project. A commercial enterprise aims for strict confidentiality and exclusive access to the results of research to enable a competitive advantage to be gained.

Furthermore, universities expect to own all intellectual property, patentable and unpatentable, generated by the project but they do not wish to, or do not have the funds to, meet the significant expenditure associated with obtaining a portfolio of patents, or to take the other steps necessary to protect the IP. It is my opinion also that if universities agreed to own and pay for patents, a university would not know in what countries to obtain patents to create a commercially useful and protective

portfolio. Such decisions about patents are better taken by a commercial entity which operates and services customers in a particular market, is close to the market and fully understands it, and has plans developed for the "roll-out" of a product. Even with such planning and procedures in place the decisions are difficult for the company. I believe those decisions are impossible for a university.

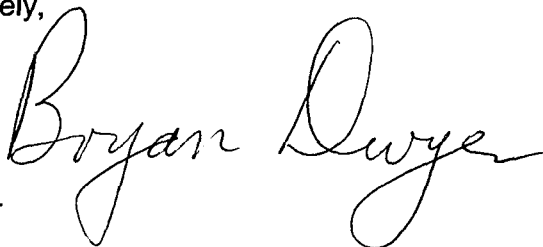
I also believe relationships with universities are useful for what I call "resource reasons". Although Memtec did not use the university resources in this way, I am aware of several small projects which would not fit within Memtec's R&D budget, but could have been carried out by universities in a time frame of three to six months. Such arrangements would have allowed the work to be done which would not otherwise be done, and the results transferred to the company. Students at the university would have benefited from work on a "real" industrial project. Finally, it appears to me, having worked in both the private and public sectors, that companies are always under cost pressures and budget constraints, much more so than are public sector institutions, e. g. universities. I have noted instances where a university has lodged an Australian provisional patent application, only to allow the application to lapse at the twelve-month deadline when confronted with the costs associated with progressing to a suitable portfolio of patents to protect the invention.

In so far as linkages with the market are concerned, it seems to me that an enterprise which does not develop linkages with the customer or client base which it serves will not survive very long. In the case of some customer/enterprise relationships there may be the need for a "strategic alliance" to be established to indicate the "value" which each party places on the relationship.

Memtec believed it was critical to product innovation and development to establish and encourage relationships with customers. It is through interaction with customers and creating solutions for customers' problems that the impetus for innovation comes. The soundness of this belief is evidenced by the way in which the MEMCOR® filtration product has evolved over several years. The current products bear very little resemblance to the initial product launched in 1984, and that is due in no small part to the requirements dictated by customers.

I hope these comments are of some use to the Committee in its deliberations.

Yours sincerely,

A handwritten signature in cursive script that reads "Bryan Dwyer". The signature is written in black ink and is positioned to the right of the typed name.

Bryan Dwyer

Encs.

Memtec Limited Prospectus 10 February 1984

- Establish procedure for capturing, documenting, registering (as necessary), protecting, policing and enforcing IP of the company;
- Coordinate activities of scientists, patent attorneys and management to achieve a high presumption of validity in all company IP;
- Budgeting for IP expenditure and manage budget;
- Collecting and storing samples of the use of company trade and service marks on product and in advertisements and product literature;
- Audit IP procedures;
- Review all agreements containing provisions in respect of company IP;
- Implement procedures relating to IP and monitor use;
- Review product literature and advertising materials for correct use of registered and unregistered marks, use of copyright notices, third party marks and statements about company IP;
- Watch IP applications of competitors;
- Search and monitor patent databases for technical information of use to company, and to analyze competitors' IP positions;
- Maintain accurate records of all company IP including inventors, inventions, invention disclosures, provisional patent applications, international patent applications, IP applications in all jurisdictions;
- Review performance, cost and capabilities of external IP service providers in Australia and overseas;
- Provide induction training on company IP procedures for new employees;
- Review presentations, advertisements, seminar papers, journal articles for IP issues;
- Maintain awareness of developments in IP law and practice nationally and internationally;
- Manage copyright issues including licenses with copyright collection agencies, company drawings, brochures and manuals, etc.
- Assist in selection of marks for products/services and monitor uses of marks.



MEMTEC LIMITED
Incorporated in New South Wales

MEMTEC
MEMTEC
MEMTEC
MEMTEC

PROSPECTUS

The shares offered herein are of a speculative nature

Underwriters

ORD MINNETT

Members of The Sydney Stock Exchange Limited

MEMBRANE MEMBRANES

The world around us and inside us is a vast network of "membranes" — thin walls which specifically control the transport and separation of substances. In our lungs, membranes allow passage of oxygen from air. Membranes in plants control the passage of oxygen and carbon dioxide. Kidney membranes remove impurities from the bloodstream.

In theory, membranes will separate particular species from a fluid stream with the least use of energy.

Researchers have long desired to duplicate the ability of Nature's membranes but until recently have had to make do with crude, energy-expensive methods such as distillation and low temperature fractionation.

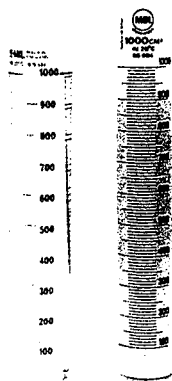
In the last twenty years advances in material sciences, particularly polymer chemistry, have provided scientists with the opportunity to begin to copy some of the efficiency of nature. The beauty and simplicity of the principle of membrane separation have attracted the attention of scientists and engineers the world over.

Scientists are researching the membrane separation of the new products of biotechnology, converting into valuable products the wastes which previously defiled the environment, and immobilizing liquids in membrane walls which specifically transport ions with the potential to revolutionize mining and mineral processing. Membranes have recently been developed which can separate a particular ion from a mixture. Membranes are used to clean water for drinking and in electronics and pharmaceutical manufacture. The potential is yet to be realized but because of its promise, membrane technology will be a growing force for many years.

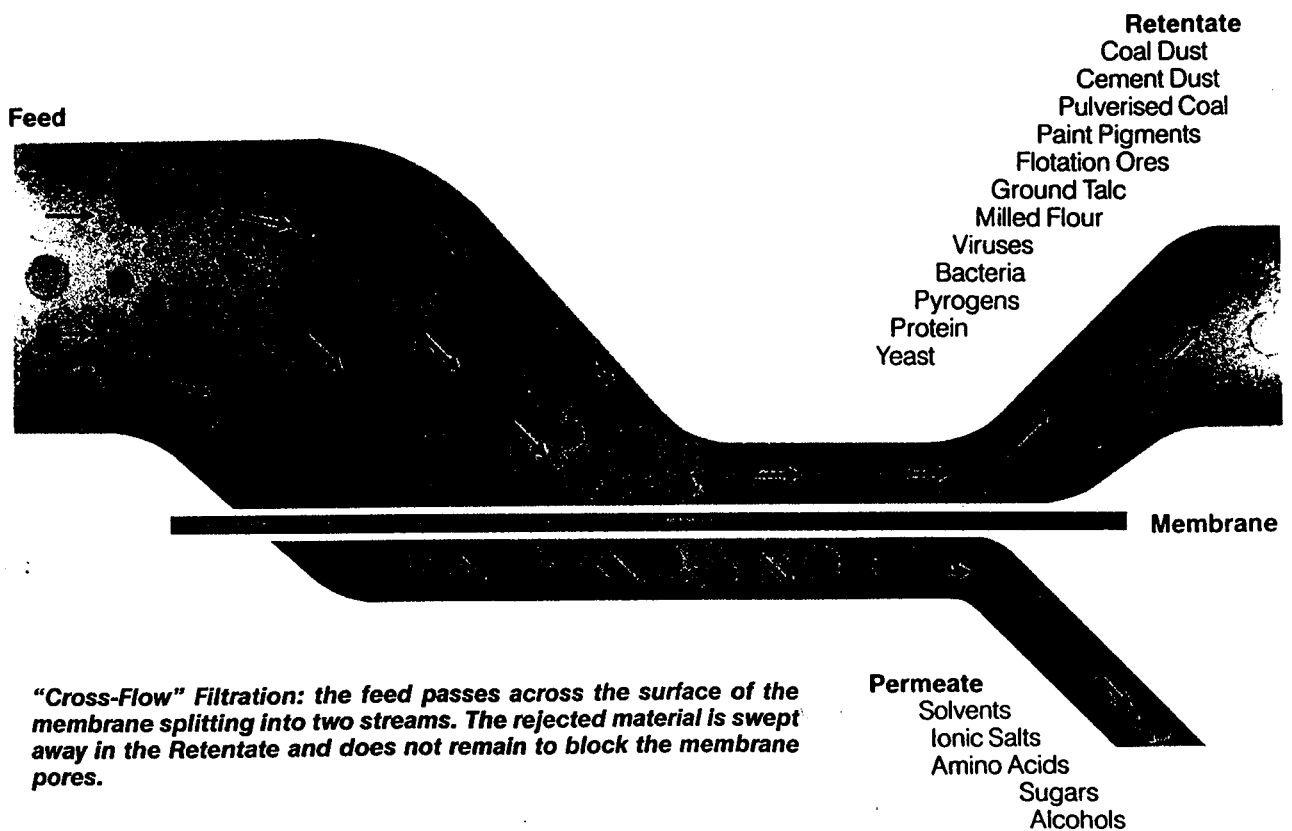
MEMTEC LIMITED

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Left cylinder holds water removed from egg solution (being the right cylinder).



MEMTEC LIMITED

(Incorporated in New South Wales)

Prospectus

for an issue of

4,800,000 ordinary shares of 25 cents each issued at 30 cents per share.

AUTHORISED CAPITAL

<u>40,000,000</u>	Ordinary shares of 25 cents	<u>\$10,000,000</u>
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ISSUED AND PAID UP CAPITAL

11,200,020	Ordinary shares of 25 cents fully paid*	\$2,800,005
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SHARES NOW OFFERED FOR SUBSCRIPTION

<u>4,800,000</u>	Ordinary shares of 25 cents each (issued at 30 cents being 25 cents par and 5 cents premium)	<u>\$1,200,000</u>
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<u>16,000,020</u>	Total issued and paid up capital (after allotment of the shares now offered for subscription)	<u>\$4,000,005</u>
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UNISSUED CAPITAL

23,999,980	On completion of this issue, unissued capital will be	\$5,999,995
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*The Issued and Paid Up Capital is made up of the Management — 4,800,016 ordinary shares; Travenol International, Inc. — 3,200,000 ordinary shares; Unisearch Limited — 1,000,000 ordinary shares and Other Investors 2,200,004 ordinary shares — as set out on page 6 of this Prospectus.

Purpose of the Issue

Memtec Limited seeks capital to complete the pilot industrial projects it has commenced, to further develop and patent its novel technology, to commence a marketing programme to exploit its technology and products, and finally to provide adequate operating and working capital funds for the next three years.

This Prospectus is dated 10th February 1984.

A copy of this Prospectus has been lodged with the Corporate Affairs Commission of the State of New South Wales as delegate for the National Companies and Securities Commission. Neither the Commissions nor their respective officers take any responsibility as to its contents.

It is proposed to issue this Prospectus in the States of New South Wales, Queensland, South Australia, Tasmania, Victoria and Western Australia and in the Australian Capital Territory.

Company particulars

Directors:	Ernest Walter Mervyn Norrie A.S.T.C. (Hons), <i>Chairman and Non-executive Director</i> 47/1 Lauderdale Avenue, Fairlight NSW 2094 Denis Michael Hanley A.A.S.A SNR, MBA, <i>Managing Director</i> 5 Howard Place, Castle Hill NSW 2154 Dr Douglas Lyons Ford PhD, MSc., A.S.T.C., F.R.A.C.I., A.T.S., <i>Director of Research</i> 17 Trelawney Street, Eastwood NSW 2122 Michael Anthony Quinn BSc, BEc, MBA, <i>Executive Director</i> 8 Elphinstone Place, Davidson NSW 2085
Company Secretary:	Michael Anthony Quinn, 8 Elphinstone Place, Davidson NSW 2085
Registered Office:	C/- Price Waterhouse, MMI Building, 60 Macquarie Street, Parramatta NSW 2150
Principal Office:	Blaxland House, 5-7 Ross Street, North Parramatta NSW 2151
Solicitors to the Company:	Baker & McKenzie, AMP Centre, 50 Bridge Street, Sydney NSW 2000
Patent Attorneys:	Halford & Maxwell, 44 Market Street, Sydney NSW 2000
Auditors:	Price Waterhouse, MMI Building, 60 Macquarie Street, Parramatta NSW 2150
Share Registrar:	Price Waterhouse, 9-13 Young Street, Sydney NSW 2000
Bankers:	Westpac Banking Corporation 407 Church Street, North Parramatta NSW 2151
Underwriters:	Ord Minnett, 1 York Street, Sydney NSW 2000 351 Collins Street, Melbourne Vic 3000 One College Hill, London EC4R 2RA. 767 Third Avenue, New York NY 10017
Solicitors to the Underwriters:	Stephen Jaques Stone James, AMP Centre, 50 Bridge Street, Sydney NSW 2000

Shares offered for subscription

A total of 4,800,000 ordinary shares of 25 cents each at 30 cents per share, payable in full on application, are offered for subscription by this Prospectus.

Minimum application

Applications must be for a minimum of 2,000 shares. Applications for more than 2,000 shares must be for a multiple of 1,000.

Opening and closing dates

Applications may be lodged at any time after the issue of this Prospectus. Applications must be accompanied by payment in Australian currency of 30 cents per share. Cheques should be made payable to "Memtec Limited" and crossed "Not Negotiable".

Application lists will open at 12 noon Eastern Summer Time on 6th March, 1984 and will remain open until 5 p.m. Eastern Summer Time on 20th March, 1984, subject to the right of the Directors to close the issue earlier without prior notice.

Application for shares

All applications for shares offered by this Prospectus must be made on the application form attached to and forming part of this Prospectus and lodged with:

ORD MINNETT

1 York Street,
Sydney, NSW 2000

351 Collins Street,
Melbourne, Vic 3000

or any member firm of the Australian Associated Stock Exchanges.

Allotments

The Directors reserve the right to allot shares in full on any applications subject to the rights of the Underwriters set out in the next paragraph, or to allot or issue any lesser number or to decline any application.

Where no allotment or issue is made, the amount rendered on application will be returned in full. Where the number of shares allotted is less than the number applied for, the surplus application moneys will be returned to the applicant within 30 days of the closing of the subscription lists.

Underwriting and brokerage

The issue of 4,800,000 ordinary shares of 25 cents issued at 30 cents per share has been underwritten by Ord Minnett (Members of The Sydney Stock Exchange Limited) for a fee of 1.5 cents per share, out of which a handling fee of 0.3 cents per share will be paid to Members of a Recognised Stock Exchange in Australia in respect of shares allotted pursuant to applications lodged by them and bearing their stamps. The Underwriters have the right to nominate the allottees of all of the shares offered by this Prospectus. For further details of the Underwriting Agreement, refer to page 21 of this Prospectus.

Stock exchange listing

The Australian Associated Stock Exchanges take no responsibility for the contents of this Prospectus. Permission has been granted for Memtec Limited to be admitted to the Official Lists of the Member Exchanges of the Australian Associated Stock Exchanges and for the shares offered by this Prospectus to be granted Official Quotation.

Quotations of the shares offered by this Prospectus will commence as soon as practicable after the issue of certificates to the allottees.

Quotation of the shares held by Travenol International, Inc. and Unisearch Limited will be sought twelve months after the shares issued to members of the public pursuant to this Prospectus have been granted Official Quotation.

Share register

The Company will maintain a share register at:

Price Waterhouse,
9-13 Young Street,
Sydney, NSW 2000

E. W. MERVYN NORRIE

— CHAIRMAN OF DIRECTORS

Mr Norrie has had a long and successful business career, in the Australian Chemicals industry, which commenced in industrial research in 1939 with Timbrol Limited. Timbrol merged with Eveready Pty. Limited in 1957 to form Union Carbide Australia Limited. More recently Mr Norrie rose from the position of General Manager of the Chemicals Division of Union Carbide in 1961 through the position of General Manager Development of Union Carbide Australia, General Manager Operations of Union Carbide Australia and New Zealand Limited, Managing Director of Union Carbide Australia and finally Deputy Managing Director of Union Carbide Australia and New Zealand Limited. He retired from Union Carbide in 1980 after 40 years' service. He is currently a senior active member of Sydney Rotary, Fellow of the Institute of Directors in Australia and a Director of the Hooker Corporation Limited. Mr Norrie's business guidance and advice has assisted from the inception of the Memtec idea through its development with Travenol to the present. He remains active in the strategic aspects of the business.

DENIS M. HANLEY

— MANAGING DIRECTOR

Mr Hanley is Memtec Limited's founding Managing Director. He has managed the operating subsidiaries in Australia and New Zealand of Baxter Travenol Laboratories, Inc. for the past six years. Mr Hanley was responsible for Travenol Australia's vertically integrated manufacturing facility employing in excess of 400 employees of varied skills and disciplines where most of Travenol's Australian and New Zealand sales turnover was manufactured. Also he had profit responsibility for Baxter Travenol's operating divisions within Australasia. He oversaw Travenol Australia's research and development activities, the commencement of Travenol's business in New Zealand and a continuing overall growth in sales turnover of the combined operations from 1976 to 1982.

Prior to taking up this position in Australia Mr Hanley resided in the United States for five years, assuming responsibility for the international tactical review group reporting to Baxter Travenol's senior international management. Mr Hanley's initial education was in the accounting profession and he was admitted to the Australian Society of Accountants as a senior associate in 1973. Later he obtained a Master of Business Administration degree from the Harvard Graduate School of Business, where he graduated with High Distinction and was named a Baker Scholar.

Mr Hanley is presently a member of the Institute of Directors in Australia, the Australian Society of Accountants, is a registered Tax Agent and a Life Governor of Sydney Hospital. He has had a broad business education and international experience in managing a complex integrated manufacturing business from small beginnings to a large operation. He was responsible for negotiating with Baxter Travenol to procure this opportunity for Australian enterprise.

MICHAEL A. QUINN

— DIRECTOR AND COMPANY SECRETARY

Mr Quinn is Memtec Limited's General Manager. He is both a Bachelor of Science with a major in physics and a Bachelor of Economics from the University of Western Australia. Mr Quinn is also a graduate of the Harvard Graduate School of Business. Most recently he has worked with Raychem Corporation, which is a United States international, high technology, growth corporation involved in advanced cross-linked radiation and heat shrink metal and semi-conductive polymer technologies. Mr Quinn was responsible for the sales management of a division of this corporation. Sales were to the armed services, mines, power generation authorities, telecommunication companies and the aerospace and construction industries.

Early in 1982 he was recruited to Memtec and has been responsible for the marketing, sales and manufacturing.

DR DOUGLAS L. FORD

— DIRECTOR AND CHIEF OF RESEARCH

Dr Ford is Memtec Limited's Director of Research. His education has been in chemistry, culminating in his being awarded his PhD at the University of New South Wales. After a research career with Taubmans Paints and with Timbrol Limited he became responsible for the research programmes of the Union Carbide Company in Australia and later became Associate Director of Research for a division of the Union Carbide Corporation in the United States. While at Union Carbide Australia Dr Ford was responsible for all polymer research developments, including phenolformaldehyde, polyurethane, and polyethylene, extending from research to consumer products development and control.

Dr Ford is an outstanding Australian Chemist. He is a founder and a foundation fellow of the Australian Academy of Technological Sciences, is a fellow of the Royal Australian Chemical Institute and the American Chemical Society, was a member of the Australian Research Grants Committee from 1968 to 1970, was an executive member of the C.S.I.R.O. for three years, was a member of the Academic Committee of the University of New South Wales from 1964 to 1970, was a foundation member of the Australian Industrial Research Group and was a member of the Boards of the Prince of Wales, Prince Henry and Eastern Suburbs hospitals for six years, during which time he chaired the Drug Committee for each hospital.

Dr Ford has 12 commercial patents, 19 technical publications and 20 major technical lectures to his credit. More importantly, he has had invaluable experience over many years in industrial research in Australia and overseas and he has taken charge of development at Memtec Limited with a view to optimising the technology for applications identified by it.

(a) **Travenol International Inc.**

Travenol International, Inc. ("Travenol International") is a wholly owned subsidiary of Baxter Travenol Laboratories, Inc. ("Baxter Travenol") and is the holding company for Baxter Travenol's international businesses. Baxter Travenol is a United States corporation which has a turnover in excess of \$US 1.6 billion in the world-wide hospital products market. Filtration techniques tend to be "application specific" and Baxter Travenol is a world-wide supplier in the specific ultrafiltration technique of artificial human kidney dialysis. This market position has been obtained and retained by continuing technological development, which has Baxter Travenol at the leading edge of medically related membrane technology.

Baxter Travenol was incorporated in 1931 and has engaged in the world-wide development, manufacture and sale of a diversified line of medical care products and related services. Its products and services are used principally by hospitals, blood centres, clinical laboratories, dialysis centres, and at home under physician supervision. Products are manufactured by the company in 17 countries and sold in more than 100 countries.

Baxter Travenol has a long history of consistent growth in earnings — twenty-eight consecutive years of earnings growth averaging 23% compound (24% over the last 10 years). Over this period it has developed as a medical/hospital supply company spending over the last five years \$US 305 million on research and development investments (\$US 92 million in 1982) to support that focused business strategy.

As outlined in Baxter Travenol's letter, dated 20th January, 1984 (see Prospectus, page 17), Baxter Travenol has decided to focus their resources and management attention on the medical field exclusively and have permitted its previous employees Messrs Hanley, Quinn, Anderson and Dr Ford to buy into the commercial exploitation of this Memtec membrane technology for non-medical uses. However, Baxter Travenol has retained a 20% participation in Memtec Limited and would be expected to look favourably on technical collaboration where mutual advantage exists in developing its products.

Baxter Travenol has entered into a licensing arrangement with Memtec Limited which will give Baxter Travenol the exclusive rights to medical products using Memtec

technology and will give Memtec exclusive rights to the industrial applications for Baxter Travenol's developments in Memtec's technology. Further details of these arrangements are set out in Clause 13(a) of the Additional Statutory Information on page 20 of this Prospectus.

Baxter Travenol Laboratories, Inc., takes no responsibility as to the contents of this Prospectus or for the outcome of the business venture described in this Prospectus.

(b) **Unisearch Limited**

As outlined in the Unisearch Limited letter, dated 20th January, 1984 (see Prospectus, page 18), following work performed at the University of New South Wales a patent was obtained by Unisearch Limited. A licence to this patent has since been obtained by Memtec Limited. Unisearch Limited has also undertaken that it will grant to Memtec Limited the first opportunity to exploit future patents developed at the University for separative processes wherever it is possible to do so. Both the licence and the opportunity for future technology have been granted in return for \$250,000 and subsequent royalties. Unisearch Limited has, in turn, utilized these funds to purchase one million shares in Memtec Limited. This ongoing relationship with the University for mutual development of this Australian technology is of great advantage to Memtec Limited. The University has a highly qualified and well-directed programme of research into the theory and practice of membrane technology.

Unisearch Limited takes no responsibility as to the contents of this Prospectus or for the outcome of the business venture described in this Prospectus.

(c) **The Management**

The initial management, Mr Denis Hanley, Mr Michael Quinn, Dr Douglas Ford and Mr E. William Anderson, have all taken significant, but not controlling, shareholdings in the company and have signed three-year employment contracts with Memtec Limited covering the initial development period of the company, commencing 1st July, 1983.

(d) **Other Investors**

Other investors have partially funded the initial development and patent work and provided operating capital prior to this issue.

Proposed Shareholding

All shares on issue at the close of this prospectus have been issued at 25 cents par.

The shareholding structure of Memtec Limited following the issue of 4,800,000 shares at 25 cents par and 5 cents premium will be as follows:

	NUMBER OF SHARES	PERCENTAGE HOLDING
The Management*: Mr D. Hanley	2,400,004	15.00
Mr M. Quinn	1,029,604	6.44
Dr D. Ford	1,029,604	6.44
Mr E. Anderson	340,804	2.13
Travenol International Inc.**	3,200,000	20.00
Unisearch Limited	1,000,000	6.25
Other investors	2,200,004	13.74
Issued and paid up capital	11,200,020	70.00
Shares now offered for subscription	4,800,000	30.00
Total issued and paid up capital	16,000,020	100.00

* Certain of The Managements' shares are subject to options (as to which refer to Clause 7 of the Additional Statutory Information on page 20 of this Prospectus).

** Travenol International, Inc. is a wholly owned subsidiary of Baxter Travenol Laboratories, Inc.

Memtec

Memtec Limited ("Memtec" or the "Company") is a high technology company. Its strategy is to develop the science of tailored membrane separation, patent the developments where possible and then exploit the patents where the opportunity exists by manufacturing or marketing the products (other than medical products) of the technology in its own right or where existing market forces dictate by technology agreements or joint ventures.

History of the Company

Memtec's technical roots are found in the work in the late 1970's of the members of the "Membrane Research Group" at the University of New South Wales, who devised an innovative polyamide (nylon) low pressure ultrafiltration membrane. Their work was ultimately the subject of a patent held by Unisearch Limited, the patent holding arm of the University.

In 1981 Baxter Travenol Laboratories, Inc. (of the United States of America) ("Baxter Travenol") obtained a licence for all of Unisearch Limited's remaining rights in the membrane patent and entered into a joint venture with an associate of the University to develop the membrane and to pursue its commercial applications. In the past two years, Baxter Travenol has spent over \$1.5 million in the activities of the joint venture. Research to date has been successful in modifying membranes to improve their performance in a number of specific market segments. The goal has been to develop specialty products and services tailored for the separation and purification of fluids. Through the combined efforts of Memtec Limited and its predecessor, Memtec Laboratories Pty. Ltd. (whose ultimate parent company is Baxter Travenol Laboratories, Inc., U.S.A.) trials and pilot plants have been and will be established to treat starch and brewery waste and oil water waste. In the past two years, work on these plants and others has resulted in billings in excess of \$300,000. Work has taken place to:

- Refine dextrose of certain long chain molecular impurities;
- Purify water by removing bacterial and certain chemical impurities;
- Treat starch waste to remove suspended impurities;
- Treat waste to remove suspended particles; and
- Separate oil water waste generated by shipping.

The pilot plants will have to run for a period of at least two years to ensure compliance with the specifications of the regulatory authorities but results to date show promise.

When it became apparent that the Baxter Travenol research programme was to be directed towards the medical supply business, the Australian management believed this presented a unique opportunity to acquire rights to the membrane technology for industrial application. Baxter Travenol agreed to sell the patents to

the membrane technology to an Australian company in which the Australian management, Messrs Hanley, Quinn, Anderson and Dr Ford, had significant interest. As part of the arrangement, Baxter Travenol required that it should hold a 20% interest in the Australian company which was Memtec Limited. Baxter Travenol also entered into a licensing arrangement with Memtec which will give Baxter Travenol the exclusive rights to medical products using Memtec technology and will give Memtec exclusive rights to the industrial applications of Baxter Travenol's developments of Memtec's technology.

The Market

The world market for membrane devices is extremely fragmented. Many companies, often small companies, participate by making a membrane, a cartridge using someone else's membrane, or machinery in which to mount cartridges. Business success for membrane companies has typically been based upon exploitation of a technical success in specific market segments. The market has segmented into the different user applications and, in most cases, successful suppliers have focused development to enhance their position in their specific market and product segments. For example, one company may enjoy great customer support in electrophoretic paint recovery, another in cheese whey concentration, another in laboratories for bacterial concentration and so on. This observation is important to Memtec because:

- (i) Memtec believes it has the technical flexibility to tailor membranes to many uses;
- (ii) Memtec is presented with many opportunities in membrane markets which are not monopolised or dominated by a single membrane developer; and
- (iii) Memtec anticipates that its patent position will permit it to penetrate important markets outside Australia.

The Technology and The Products

In Memtec's technical business plan, the goal has been to develop specialty products and services tailored for the separation and purification of fluids. This has resulted in work on the ultrafiltration and microfiltration of liquids but the technology has potential for gases also.

The products are flexible porous sheets and tubes which are, in practice, fine pored sponge-like structures made of chemically and physically modified nylons and other polymers. The sponge-like nature of the membrane surface ensures the presence of a three dimensional surface. This large surface area at the interface with the fluid being treated reduces the necessity for high driving pressures. The benefit of the Memtec product may be summarised as follows:

MEMTEC

(a) Product Advantages

With Memtec's product, the customer has a low requirement for energy cost to operate their system and more importantly, the equipment in which the membrane is mounted and operated can be of light construction with a large use of plastic components and therefore be less expensive than that required for high pressure competitors. Because the membrane and cartridges are constructed by Memtec from inexpensive plastics, it is unlikely that competitive product could be produced from materials which in relative terms could place the Memtec product at a significant material cost disadvantage.

(b) Tailoring Advantage

In view of the range of conditions of chemistry and temperature which prevail in industry, Dr Ford's research at Memtec was directed to strengthening the University membrane's resistance to enable long term operation in commercial use.

Having devised the technique for modifying the membrane to stabilise the product, the research was continued to develop what is the most significant of Memtec's technical programmes — the tailoring of the membranes for individual circumstances. This programme aims to mirror Nature's processes by using individually optimised membranes for specific uses.

The programmes that have been completed have resulted in patent applications as regards temperature stability, crush resistance, pore size control, surface charge, alkali resistance and hydrophobic/hydrophilic properties.

This tailoring was achieved relatively quickly and indicates that there are significant opportunities for other work using similar techniques. It is expected that patents for these techniques will eventually become important sources of royalty income.

The Management

Memtec has a policy of selecting employees of the highest ability and experience. So that they can identify closely with the Company and be committed to its success, all selected employees will be eligible to participate in a share purchase plan. Ownership participation has been a key element in the success of many overseas high technology companies. The Memtec share purchase plan enables all employees to purchase shares at market price. A total of 800,000 shares (being 5% of the capital of Memtec after this issue) has been set aside for this plan. A trust established by the Company will assist employees to make such purchases by the provision of a loan of up to 25% of their annual gross salary at any one time.

Memtec has a significant asset in its exceptional management group. As evidence of their commitment to the enterprise, the management group have

subscribed for shares which will after the issue contemplated by this prospectus be 30% of the total share capital and have signed contracts with Memtec which involve salaries much lower than they have received in the past. They therefore have a strong incentive to maximize the value of the Company shares. This should give them the same incentive as all other shareholders.

Facilities

The Memtec production facilities and management offices are currently located within the factories and offices of Travenol Laboratories Pty. Ltd. at Toongabbie and North Parramatta, Sydney.

Patents

Memtec has acquired exclusive rights under the Unisearch patent and has acquired all rights to subsequent improvements made by Travenol in the invention described in the Unisearch Patent. In addition, Memtec has acquired other related membrane patents from Baxter Travenol and Travenol Laboratories Pty. Ltd. and has filed its own patent applications on a variety of methods to enhance the stability, utility and commercial feasibility of the Unisearch and other membranes. These enhancements of the Unisearch membrane have strengthened the overall patent position of the Unisearch patent. It is planned to lodge further patents in accordance with a detailed membrane patent strategy. (Refer Patent Attorney's Report on page 14).

Research Grants

The Australian Federal Government currently provides considerable encouragement for Australian research in the form of cash grants for approved programmes. The Company intends to apply for these grants to assist in the speedy development of the commercial applications of its technology. Grant funds were substantially increased in the last Budget. The Company anticipates that it may be eligible for grants.

Financial Prospects

As noted in Dr Randerson's report (see page 11 of this Prospectus), membrane technology has achieved rapid growth over the last three decades from estimated world wide sales of \$5 million in 1950 to over \$700 million in 1983. To participate in this membrane market it should be noted that there is the need to tailor membranes to particular customer and industry requirements. Therefore, initial sales will be low and relate primarily to pilot projects. Based on an analysis of available information, it is expected that trading break even and dividend payments will not occur for a number of years and no undertaking can be given as to the achievability.

MEMTEC

Risks

While Memtec possesses a number of strengths, this is in the true sense of the word a venture and therefore involves business risk. There has been no long term operation of the membrane in industrial settings. Therefore, additional research and tailoring may be required to confirm the long term economic performance of the membrane. This will be done in the pilot programmes which are instituted for each new application of the technology. Secondly, it is necessary to optimise the reliable operation of the engineering equipment in which the membranes have been mounted.

While these are not insignificant risks, a period of two to three years on the applications under trial offers every opportunity for successful development. This time of technical consolidation constitutes the major risk period of the venture.

Conclusion

Should Memtec's business strategy prove successful, it is also planned to commence operations in the United States and the United Kingdom as soon as possible. Memtec possesses an exciting opportunity and a strong management team. It is poised to participate in the growth stage of a new technology of great importance.

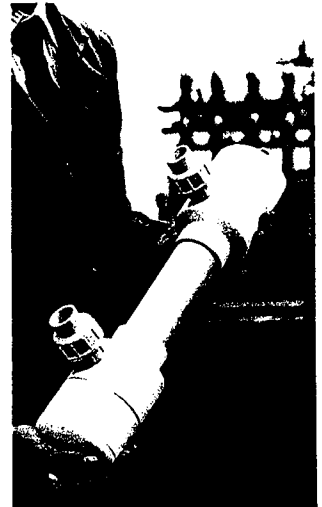
The Directors advise that technical developments will involve work continuing over a number of years which will be reported annually to shareholders. If this work continues to be successful it should result in a most rewarding experience for the investors.



The Board of Directors (L to R): M. A. Quinn, Dr. D. L. Ford, D. M. Hanley and E. W. M. Norrie.



Flat plate cartridge holding "Unisearch Limited" membrane.



"Hollow Fibre" membrane cartridge.

Projected Sources and Uses of Memtec Share Capital

Sources

The share capital of Memtec Limited (after the public issue) will have been raised as follows:

	\$
Management Group.....	1,200,003
Travenol International Inc.....	800,000
Other Investors.....	550,002
Unisearch Limited.....	250,000
This Issue.....	1,440,000
TOTAL.....	4,240,005

Uses

Over the three years ended 30th June, 1986 it is projected that the share capital raised will be expended as follows:

	\$
Patents and Licences Acquired.....	2,370,000
Research and Patent Development Costs.....	1,441,000
Developing Business Operations — Net.....	116,000
Working Capital Increases.....	76,005
Formation Expenses.....	200,000
Expenditure on Premises and Machinery.....	525,000
Miscellaneous.....	100,000
Less the Reinvestment of Depreciation and Amortisation.....	(588,000)
TOTAL.....	4,240,005

Net Tangible Asset Backing

The balance sheet of Memtec Limited as at 30th November, 1983 shows net tangible assets of \$466,314.

Adding to the balance sheet the net proceeds from this public issue, the net tangible asset backing would be 10.6 cents per share.

A new development in membrane technology

This statement has been prepared for inclusion in a prospectus for the issue of 4,800,000 ordinary shares of 25 cents each issued at 30 cents per share.

Membrane technology has achieved rapid growth over the last three decades from estimated world wide sales of \$5 million in 1950 to about \$700 million in 1983.

Membranes are essentially porous barriers, usually thin plastic films, which are capable of separating molecules or fine particles from a fluid, and of molecular fractionations, i.e. separating molecules on the basis of size. The chemical and physical structure of membranes can be varied to suit different applications, and the principles governing transport of molecules or ions through the membrane, termed the driving force, delineate several distinct processes. For example, reverse osmosis (RO) uses high pressure and 'tight' membranes to produce potable water from brackish or sea water by rejecting dissolved species; ultrafiltration (UF) uses moderate pressures and more 'open' membranes to remove large molecules or colloidal particles from solution; dialysis relies upon the difference in concentration of solutes on each side of the membrane to effect a selective exchange of dissolved substances; electrodialysis (ED) uses electrical potential and charged membranes to separate ions from solution; and gas permeation (GP) uses pressure and various membranes to separate gas mixtures.

The attractions of membrane processes are that they offer novel methods of separating molecules at industrial scale. They are modest in their energy requirements and they produce no waste products other than those unwanted components already present in the feed stream. As a result, membrane technology is being linked with some of the major challenges of our time such as water purification, pollution control, energy conservation and production, biochemical processing including genetic engineering, biomedical engineering, etc. Membrane technology is no longer a text book curiosity but a new and promising tool for industry.

Memtec Limited is an Australian company producing membranes for industrial use. The basis of their technology is a microporous membrane made from polyamide (nylon). This is a low-cost material which can be fabricated into a membrane by a relatively simple patented process. The membrane produced is robust and effective, particularly after further patented pre-treatment operations. The fabrication process may be adjusted to produce membranes of different characteristics, ranging from open structures suited to cross flow microfiltration (CFF) to tighter membranes for UF, and possibly RO.

Several aspects of the Memtec Limited membrane concept are particularly attractive. Firstly, the membranes may be 'tailored' to meet the requirements of a particular application. Tailoring is achieved by the novel

post-treatment process which strengthens the membrane and allows various functional groups (such as charged species) to be bonded into and onto the membrane. This approach means that the membrane can be made relatively insensitive to the chemical species in the solution being processed (note that membrane/solution interactions can cause loss of performance in membrane processes). The ability to tailor membranes is a significant one, and means that the membrane can be adjusted to fit the application rather than vice versa.

Secondly, the Memtec membrane systems for UF and CFF are designed for low pressure application, typically 1 to 2 atmospheres pressure rather than the more usual 3 to 6 atmospheres. This has two particular advantages. The energy requirements, which are directly related to operating pressure, are reduced and the piping and membrane housing can be fabricated out of low cost plastics.

Thirdly, in the Australian context the fact that Memtec Limited is a local producer and marketer of membranes gives it certain technical and commercial advantages over imported membranes. This is because membrane technology is very user-specific and successful exploitation requires active collaboration between the membrane manufacturer and the potential customer. Such collaboration is best achieved if the membrane manufacturer has local development facilities and know-how.

The current generation of Memtec membranes have been developed for UF and CFF. Applications for which the membranes have been successful in trials include the recovery of protein from food effluents, the treatment of oil/water emulsions, the dewatering of slurries, and the removal of fine particles (colloids, bacteria, etc) from water. In addition, there are several other potential applications including the fixing of enzymes to the membrane for biochemical processing, the use of a modified membrane for brackish water desalination and a range of possibilities for gas separations. From this basis, Memtec Limited could have excellent prospects for growth with the inevitable increase in the application of membrane technology both in Australia and world wide.

20th January, 1984

D. H. Randerson, M.Sc., Ph.D., C.Eng., M.I.Chem.E.



60 MACQUARIE STREET PARRAMATTA
 BOX 975 PO PARRAMATTA NSW 2150
 TELEPHONE (02) 633 3555
 CABLE 'PRICEWATER' PARRAMATTA
 TELEX 27486
 DX 8217 PARRAMATTA

20th January, 1984

The Directors,
 Memtec Limited,
 12/5-7 Ross Street,
 North Parramatta, N.S.W. 2151

Dear Sirs,

This report has been prepared for inclusion in a prospectus relating to the issue by Memtec Limited ("the company") of 4,800,000 shares of 25 cents each issued at 30 cents per share.

As auditors of the company, we report as follows:

1. The company was incorporated in New South Wales on 18th June, 1982.
2. No dividend has been declared or paid by the company since the date of incorporation.
3. Accounts.

The statements of profits and losses and assets and liabilities have been drawn up in accordance with the conventions of historical cost accounting and on the assumption that the company will continue as a going concern. Accordingly, the amounts shown for assets do not purport to be the amounts that would have been realised if such assets had been sold at the date of this report. In preparing this report no support by any other corporation has been assumed.

We have audited the accounts of the company for the period from 18th June, 1982 to 30th June, 1983 and the five months ended 30th November, 1983 (being the last date to which accounts have been made up). No adjustments to the profits and losses and assets and liabilities as disclosed by those accounts were considered necessary for the purpose of this report.

4. Statement of profits and losses.

The profits and (losses) of the company from 18th June, 1982 (date of incorporation) to 30th November, 1983 are set out below:

From 18th June, 1982 to 30th June, 1983 (being date to which first set of accounts was prepared)	\$ NIL
5 months to 30th November, 1983	<u>(169,992)</u>
The losses for the 5 months ended 30th November, 1983 were arrived at:	
After crediting as revenue	
Interest received and receivable from other persons	4,778
After charging as expense	
Amortisation of patents	14,355
Auditors' remuneration	
Auditing services	NIL
Other	10,000
(the auditors received no other benefits apart from estimated fees in connection with preparation of the Prospectus \$5,000, included with estimated expenses of the issue referred to elsewhere in this Prospectus)	
Depreciation	1,528
Directors' emoluments excluding payments by way of fixed salaries	
Directors in full time employment	NIL
Other Directors	1,167

5. Statement of assets and liabilities.

The assets and liabilities of the company at 30th November, 1983 are as set out below:

	\$
CURRENT ASSETS	
Cash at bank	33,168
Debtors	4,981
Short term investments	<u>415,000</u>
	<u>453,149</u>
Less,	
CURRENT LIABILITIES	
Trade creditors and accruals	86,716
Sundry creditor (note ii)	<u>51,706</u>
	<u>138,422</u>
	314,727
FIXED ASSETS (note iii)	151,587
INTANGIBLES (note iv)	<u>2,163,699</u>
	<u><u>2,630,013</u></u>

MEMTEC

Note 5 continued

Represented by:

Authorised capital	
40,000,000 shares of 25 cents each	<u>10,000,000</u>
Issued capital	
11,200,020 shares of 25 cents each	2,800,005
Accumulated losses	<u>(169,992)</u>
	<u>2,630,013</u>

NOTES TO THE STATEMENT OF ASSETS AND LIABILITIES

(i) Significant Accounting Policies.

(a) Basis of Accounting.

The statement of assets and liabilities has been prepared under the historical cost convention.

(b) Depreciation.

Fixed assets are depreciated over their estimated useful lives using the straight line method.

(c) Intangible Assets.

Costs of purchase of patents and application costs for new patents are capitalised and amortised over the lesser of their estimated useful lives or fourteen years.

(ii) Sundry creditor represents amount owing to Travenol Laboratories Pty. Ltd. for working capital provided during the period of the capital raising.

(iii) Fixed assets.

Plant and equipment, at cost	\$ 82,943
Provision for depreciation	<u>691</u>
	<u>82,252</u>
Furniture and fittings, at cost	9,528
Provision for depreciation	<u>79</u>
	<u>9,449</u>
Motor vehicles, at cost	60,644
Provision for depreciation	<u>758</u>
	<u>59,886</u>
	<u>151,587</u>
(iv) Intangibles.	
Licence fees, at cost	250,000
Provision for amortisation	<u>1,488</u>
	<u>248,512</u>
Patents, at cost	1,903,306
Provision for amortisation	<u>12,867</u>
	<u>1,890,439</u>
Trade marks, at cost	<u>24,748</u>
	<u>2,163,699</u>

Patents include amounts paid for patents and know-how pursuant to agreement set out in Clause 13(a)(ii) in the Additional Statutory Information of this Prospectus.

The value of licence fees, patents and trade marks is dependent upon development of viable industrial uses or the sale or licence of the patents.

(v) Contingent liabilities.

There were no contingent liabilities at 30th November, 1983.

6. In our opinion, there are no material items, transactions or events subsequent to the balance date which relate to conditions existing at balance date which require comment on, or adjustment to the figures dealt with in our report.

To the best of our knowledge and belief there have been no material items, transactions or events subsequent to the balance date which, although they do not relate to conditions existing at balance date would cause reliance on the figures shown in this report to be misleading.

Yours faithfully,
PRICE WATERHOUSE

J. W. King,
A Member of the Firm.
Registered Company Auditor.

MEMTEC

Patent Attorney's Report

Graham Halford
Peter Maxwell
Patent & Trade Mark Attorneys

Halford & Maxwell

20th January, 1984

The Directors,
Memtec Limited,
12/5-7 Ross Street,
North Parramatta, N.S.W. 2151

Dear Sirs,

This report has been prepared for inclusion in a Prospectus relating to the issue by Memtec Limited ("Memtec") of 4,800,000 25 cent shares issued at 30 cents per share.

Attached hereto are the following schedules of patents and applications for patents owned by or licensed to Memtec Limited:

- A. Patent and applications for patent in respect of the Memtec fluid treatment cartridge.
- B. Australian patent applications accompanied by a provisional specification assigned by Travenol Laboratories Pty. Limited to Memtec Limited by a Deed dated 27th October, 1983.
- C. Australian patent applications accompanied by a provisional specification in the name of Memtec Limited.
- D. Australian patent application assigned by Baxter Travenol Laboratories, Inc. to Memtec Limited by a Deed dated 27th October, 1983.
- E. Australian and foreign patents and applications for patent in the name of Unisearch Limited in respect of which Memtec Limited has a limited exclusive licence in accordance with an Agreement dated 27th October, 1983.

Searches made prior to the execution of the Unisearch licence agreement of 27th October, 1983 revealed prior art which, in our view, may limit the enforceable scope of the patent protection afforded by Unisearch's Australian and foreign patents and applications for patent. However, the existence of that prior art does not, in our view, adversely affect the patentability of the inventions disclosed in the patent applications listed in Schedules A, B, C and D including applications PF7861 (Schedule B) and PG1902 (Schedule C) relating to membranes.

The patent strategy of Memtec Limited is under constant review to ensure that all developments are properly protected in all relevant areas and current indications are that substantial protection should be obtained for the inventions described in the applications set forth in Schedules B and C.

Yours faithfully,

HALFORD & MAXWELL.
Peter Maxwell.

SCHEDULE A

Memtec fluid treatment cartridge

COUNTRY	NUMBER	DATE	REMARKS
Australia	75377/81	03/09/81	A request for examination has been lodged and an Examiner's report will probably issue early in 1984.
New Zealand	198268	03/09/81	This application has now been accepted by the New Zealand Patent Office. Publication in the Patent Office Journal is expected in approximately March, 1984.
E.P.O. (Belgium/Italy)	81/304032-6	03/09/81	Examination of this application by the European Patent Office is proceeding. The first official report has issued and a response has been filed amending the patent specification to meet the objections of the Examiner. Further official action is now awaited.
South Korea	3534/1981	22/09/81	Korea has a voluntary examination system and our present intention is to leave examination until after other foreign cases (particularly USA and UK) have been prosecuted.
Taiwan	7012620	02/09/81	This application has proceeded to grant under Certificate No. 18010.
Canada	385,112	03/09/81	The first report of the Examiner on this application has issued, raising minor objections to the specification. A response is due to be filed with the Canadian Patent Office by 14th April, 1984.
Denmark	1954/82	03/09/81	Automatic examination but have no estimate as to when the Examiner's report will issue.
Japan	502910/81	03/09/81	Japan has a voluntary examination system and our present intention is to leave examination until other foreign cases (particularly USA and UK) have been prosecuted.
Norway	821450	03/05/82	Automatic examination but have no estimate as to when the Examiner's report will issue.
U.K.	8210097	03/09/81	This application is presently under examination and has been the subject of two reports of the Examiner. A response to the second Examiner's report, containing submissions regarding distinctions between the subject matter of the application and the cited prior art, are presently in preparation.
E.P.O. (France, Germany, Sweden, Switzerland)	81902464.7	03/09/81	The first official report on this application has been received, requiring revision of the claims of the application prior to the full examination of the application.
U.S.A.	375,139	03/09/81	This application has been examined and no new citation has been raised. A response will be lodged shortly.

SCHEDULE B

Australian patent applications accompanied by a provisional specification assigned by Travenol Laboratories Pty. Limited to Memtec Limited

NUMBER	DATE	TITLE
PF7860	02/02/83	Removal of protein from a liquid using a bed of polyamide particles.
PF7861	02/02/83	Polymeric membrane in which the relatively crystalline portions are linked together.
PF8036	15/02/83	Purification of water and non-ionic aqueous solutions utilising ion exchange, activated charcoal and ultra filtration cells.
PF8424	14/03/83	Treatment of carbohydrate-containing waste liquors.

SCHEDULE C

Australian patent applications accompanied by a provisional specification in the name of Memtec Limited

NUMBER	DATE	TITLE
PG1368	12/09/83	Treatment of a hydrophobic membrane to render it hydrophilic.
PG1662	30/09/83	Blow-back cleaning of ultrafilters.
PG1759	10/10/83	Treatment of a hydrophobic membrane to render it hydrophilic.
PG1902	18/10/83	Cross linked amide membranes.
PG2035	25/10/83	Concentration of paste.

MEMTEC

SCHEDULE D

Australian patent application to be assigned from Baxter Travenol Laboratories, Inc. to Memtec Limited

NAME	DATE	FOREIGN FILINGS DUE BY	TITLE
14358/83	09/05/83	09/05/84	Preparation of porous membranes.

SCHEDULE E

Australian and foreign patents and applications for patent in the name of Unisearch Limited to which Memtec Limited is licensed, all of which relate to anisotropic membranes

COUNTRY	APPLN. NO.	PATENT NO.	STATUS
Australia	40897/78	505,494	In force.
New Zealand	—	188,666	In force.
U.S.A.	181,146		Continuation application filed 8th April, 1982 and about to be refiled.
U.K.	40969/78	2,006,643	Patent in force.
West Germany	P 28 45 797.8		Under examination.
Switzerland	10951/78-8	633453	Patent in force.
Japan	53-129941	1163504	In force.
France	78,29994		Under examination.
Denmark	4634/78		Examination requested.
Fiji			Registration of British patent No. 2,006,643 applied for in August 1983.
Singapore			Registration of British patent No. 2,006,643 applied for in August 1983.
Malaya			Registration of British patent No. 2,006,643 applied for in August 1983.
Brazil	PI 78 06967		Under examination.

Baxter Travenol endorsement



ARTHUR F. STAUBITZ
Deputy General Counsel and
Assistant Secretary

ONE BAXTER PARKWAY DEERFIELD, ILLINOIS 60015 312/948-4903

20th January, 1984

Mr Denis M. Hanley,
Memtec Limited,
12/5-7 Ross Street,
NORTH PARRAMATTA NSW 2151

Dear Mr Hanley,

This letter has been prepared for inclusion in a Prospectus relating to the issue by Memtec Limited ("Memtec") of 4,800,000 ordinary 25 cent shares issued at 30 cents per share. This issue follows, as it does, the recent issue of 11,200,000 shares in Memtec to yourself and other key Memtec employees, Unisearch Limited, ourselves and other investors.

Two years ago, we embarked on a diversification of our businesses by exploring the possibility of entering the industrial membrane field. With your assistance as the Managing Director of Travenol Laboratories Pty. Limited ("Travenol Laboratories"), our Australian subsidiary, we acquired a licence from Unisearch Limited to use the patent they held to a particular synthetic semi-permeable membrane. As you know, Unisearch Limited is responsible for the commercial exploitation of inventions arising out of research work done at the University of New South Wales. Also, we formed a joint venture with an associate of the University to enter the industrial membrane field, to develop the membrane and a cartridge developed by using our PARAFLO filtration system, and to continue the development of other membranes.

Recently, we have decided to focus our resources and management attention on the medical field exclusively. However, we still feel that the membrane may have great commercial value. We have therefore retained a significant participation in Memtec which participation, after the public issue pursuant to this prospectus, will be 20% of the total equity. As you also know, we have invested in excess of \$1,500,000 in the development of the membrane technology which membrane technology and supporting knowhow has recently been transferred to Memtec. As part of these recent transactions whereby the membrane technology and knowhow was transferred to Memtec, we received an exclusive licence from Memtec to use its current and future technology in the medical field and a non exclusive licence to use the technology in our manufacturing activities. At the same time, we have granted an exclusive licence to Memtec in the industrial field to any developments or improvements which we may make in Memtec's technology.

We would like to record our willingness to co-operate in the future on technical subjects of mutual interest including, but not limited to, the development of potential uses of the membranes for medical purposes and the development of a hollow fibre design cartridge to utilise the Memtec membranes.

Our reason for maintaining participation in Memtec is based in significant part upon our excellent relationship with you as a Travenol employee for 14 years, including your time as Managing Director of Travenol Laboratories and also of our New Zealand subsidiary. Obviously, we hope to benefit from your managerial and entrepreneurial expertise and obtain technological and financial benefits from our continued investment in Memtec. Our interest has been significantly increased by recent progress made in the stabilisation of the membrane, the implementation of pilot plants and in the development of new membranes and forms of membranes.

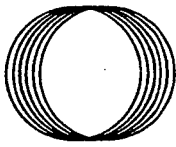
Finally, we would like to take this opportunity to indicate that it is not our intention to participate in the management of Memtec or, for that matter, to be represented on its Board. Our equity participation is entirely with a view to the benefits which we expect will accrue from such an investment.

We look forward to continued success in developing the membrane technology.

Very truly yours,

Arthur F. Staubitz, Esq., A.B., J.D.
DEPUTY GENERAL COUNSEL AND ASSISTANT SECRETARY

Baxter Travenol Laboratories, Inc. takes no responsibility as to the contents of this Prospectus or for the outcome of the business venture described in this Prospectus.



UNISEARCH LIMITED

THE UNIVERSITY OF NEW SOUTH WALES
PO Box 1 Kensington NSW Australia 2033
Telephone: (02) 662 3701

Unisearch House
221-227 Anzac Parade
Kensington NSW 2033

20th January, 1984

Mr Denis M. Hanley,
Managing Director,
Memtec Limited,
12/5-7 Ross Street,
NORTH PARRAMATTA NSW 2151

Dear Mr Hanley,

This letter has been prepared for inclusion in a prospectus relating to the issue by Memtec Limited ("Memtec") of 4,800,000 ordinary shares of 25 cents each issued at 30 cents per share.

For some years the School of Chemical Engineering and Industrial Chemistry at the University of New South Wales has been developing a Membrane Research Unit under the leadership of Professor C. J. D. Fell. In 1977 Professor Fell and associates developed an Anisotropic Multilayered Synthetic Semipermeable Membrane (the "Unisearch Membrane") in respect of which patent protection was obtained in Australia and other countries.

It is, of course, a big step to take a new innovation from conception through to commercial production, and considerable research and development work is required to achieve this. An ongoing programme of such work on the Unisearch Membrane has been underway since its conception. The Membrane Research Unit also continued to carry out research into other aspects of membranes, membrane technology and separation techniques.

One of Unisearch Limited's functions is the responsibility for the commercial exploitation of inventions arising out of the research work of the University and in this regard arrangements were entered into with certain parties for the commercial development of the Unisearch Membrane for specific applications. One of these organisations was Baxter Travenol Laboratories, Inc. ("Baxter Travenol").

In July of last year, Baxter Travenol advised that it was restructuring its activities in the membrane technology field and, as part of that programme, was supporting the restructuring of Memtec. It was proposed that the rights to the Unisearch Membrane previously licensed to Baxter Travenol by Unisearch Limited be transferred to Memtec as part of this restructuring.

We understand that Memtec, as well as undertaking further development, manufacturing and marketing of the Unisearch Membrane, will also be seeking to exploit commercially other membranes and membrane technology which may be developed in-house, as well as supporting other research work in the field at centres such as the University's Membrane Research Unit.

When the Council of the University of New South Wales established Unisearch Limited in 1959, it was giving positive expression to one of the objects of the University as set out in its Act of Incorporation — "To aid by research and other suitable means the advancement, development and practical application of science to industry and commerce."

We are naturally pleased to see the restructuring and financing of Memtec, being as it is an Australian enterprise, and welcome its addition to the very limited number of companies which are based on Australian know-how and skills. The competence of the resources available to Memtec has been previously demonstrated by the significant progress made to date through the joint venture with Baxter Travenol in the commercial development of the Unisearch Membrane.

We are looking forward to ongoing collaboration with Memtec in the fields of membrane technology and separation techniques during the coming years.

Yours sincerely,

Barry Rosenberg,
GENERAL MANAGER.

Unisearch Limited takes no responsibility as to the contents of this Prospectus or for the outcome of the business venture described in this Prospectus.

Memtec is advised by the following technical experts:

PROFESSOR C. J. D. FELL

Professor Fell was a co-inventor of the "University" membrane which Memtec Limited has licensed from Unisearch Limited. Professor Fell obtained his BSc from the University of New South Wales and PhD from the University of Cambridge, both in the field of Chemical Engineering. He has industrial research experience with ICI Limited. In 1969 he joined the staff of University of New South Wales and became Professor of Chemical Engineering in 1980. Professor Fell has some 70 learned publications to his credit with at least 35 in the area of membrane research and usage.

ASSOCIATE PROFESSOR A. G. FANE

Professor Fane is a specialist in membrane technology at the School of Chemical Engineering and Industrial Chemistry at the University of New South Wales. He has a degree in Chemical Engineering from Imperial College, London and later completed his PhD at the same College. Dr Fane joined the staff of University of New South Wales in 1972 and was appointed Associate Professor in 1983. He has over 60 learned publications to his credit of which some 38 are directly in the field of membrane technology.

ASSOCIATE PROFESSOR P. C. FARRELL

Professor Farrell has a degree from the University of Sydney, a Masters degree from Massachusetts Institute of Technology and a PhD from the University of Washington, all in the field of Chemical Engineering. In addition, he was awarded a DSc by the University of New South Wales in Biomedical Engineering for his published papers. Professor Farrell has industrial research experience with Union Carbide, MIT and Chevron. He joined the staff of the University of New South Wales in 1972 and in 1978 became Director of the Centre for Biomedical Engineering. He has over 100 learned publications of which a substantial number relates to the use of synthetic and biological membranes in medical applications.

Additional Statutory Information

1. There are no founders, management or deferred shares.
2. Directors of Memtec Limited ("the Company") are not required to hold any share qualification under the provisions of the Articles of Association of the Company. The provisions of the Articles of Association of the Company as to remuneration of Directors are contained in the following Articles:

"59.(1) The directors shall be paid such remuneration as is from time to time determined by the Company in general meeting.

 - (2) That remuneration shall be deemed to accrue from day to day.
 - (3) The directors may also be paid all travelling and other expenses properly incurred by them in attending and returning from meetings of the directors or any committee of the directors or general meeting of the Company or otherwise in connection with the business of the Company.

76. A managing director shall, subject to the terms of any agreement entered into in a particular case, receive such remuneration (whether by way of salary, commission or participation in profits, or partly in one way and partly in another) as the directors determine.

78. (1) The directors may from time to time appoint any person to be an associate director and may from time to time terminate any such appointment.

 - (2) The directors may from time to time determine the powers, duties and remuneration of any person so appointed.
 - (3) A person so appointed does not have, except by the invitation and with the consent of the directors, any right to attend or vote at any meeting of Directors."
 3. The names, descriptions and addresses of all Directors or proposed Directors are set out on page 3 of this Prospectus.
 4. (a) The minimum amount which, in the opinion of the Directors, must be raised by the issue of the shares offered for subscription by this Prospectus is \$1,440,000. This sum will provide the amounts required to be provided in respect of each of:

(i) the purchase price of any property purchased or to be purchased that is to be defrayed in whole or in part out of the proceeds of the issue:	\$ NIL
(ii) any preliminary expenses payable by the corporation, and any commission so payable to any person in consideration of his agreeing to procure subscriptions for, any share in the corporation:	\$200,000
(iii) the repayment of any money borrowed by the corporation in respect of any of the foregoing matters:	\$60,000
(iv) operating and working capital:	\$1,180,000
	\$1,440,000
 - (b) No amounts are to be provided in respect of any of the matters aforesaid otherwise than out of the proceeds of the issue.
 5. The time and date of the opening of the subscription lists are set out on page 4 of this Prospectus.
 6. The amount payable in full on application is 30 cents per share including a premium of 5 cents per share. That amount will not vary during the currency of the offer. No further amount is payable on allotment.
 7. Following advice as regards the financing of the Company, on 14th November, 1983, in consideration of the sum of \$100 paid to each of them, Messrs. Hanley, Quinn, Anderson and Dr Ford ("the Principals") granted to Hill Samuel Australia Limited an option to acquire certain shares in the Company respectively owned by them. The total number of shares that may be acquired by Hill Samuel Australia Limited is 800,000. The options are exercisable on a reducing basis during a period of four years from the date of the option at a consideration of 25 cents a share (subject to adjustment for rights and other issues by the company).
 8. No shares, within the two preceding years have been issued or agreed to be issued, as fully or partly paid up otherwise than in cash. No debentures of the Company have been issued or agreed to be issued as fully or partly paid up otherwise than in cash.
 9. No property has been purchased or acquired by the Company or any subsidiary of the Company or is proposed so to be purchased or acquired which is to be paid for wholly or partly out of the proceeds of the issue offered for subscription by this Prospectus and there is no property the purchase or acquisition of which has not been completed at the date of the issue of this Prospectus.
 10. Underwriting commission and brokerage will be paid as set out on page 4 of the Prospectus. No other amount has been paid or is payable as commission for subscribing or agreeing to subscribe or procuring or agreeing to procure subscriptions for any shares in or debentures of the Company. No director, promoter, expert or proposed director of the Company is entitled to receive any such commission.
 11. The estimated amount of preliminary expenses is \$35,000 which will be paid by the Company. The estimated amount of expenses of the issue (including underwriting commission) is \$165,000 which will be paid by the Company.
 12. No amount or benefit has been paid or given within the two preceding years or is intended to be paid or given to any promoter, other than:
 - (a) By agreements dated October 27, 1983, the Company entered into contracts of employment with the Principals (which contracts are more particularly described in Clause 13);
 - (b) By deed dated 9th November, 1983, the Company established an employee share purchase scheme under which the Eligible Employees (as therein defined) are entitled to purchase such shares as may be determined from time to time at market price. On 26 October, 1983 the Company in Annual General Meeting approved the granting of financial assistance by the Company in connection with the implementation of the said employee share purchase scheme.

By letters dated 10th and 30th November, 1983 the following offers to acquire shares in the Company were made in accordance with the employee share purchase scheme:

EMPLOYEE	No. SHARES	TOTAL CONSIDERATION
Mr D. Hanley	20,000	\$5,000
Dr D. Ford	20,000	\$5,000
Mr M. Quinn	20,000	\$5,000
Mr E. Anderson	18,000	\$4,500
Miss K. Hobbs	9,648	\$2,412
Mr J. Murray	20,000	\$5,000
Dr P. Hone	25,000	\$6,250
 13. Set out below are summaries of material contracts. These summaries do not purport to be complete and are qualified in their entirety by reference to specified contracts, copies of which may be inspected at the offices of Memtec at Blaxland House, 5-7 Ross Street, North Parramatta, NSW, 2151.
 - (a) The dates of, parties to, and general nature of every material contract (not being a contract entered into in the ordinary course of the business carried on or intended to be carried on by the Company) are:
 - (i) Sale and assignment dated October 27, 1983 between the Company, Travenol Laboratories Pty. Ltd. and Unisearch Limited whereby the Company purchased and obtained the assignment of a Licence Agreement in consideration of payment of \$250,000. This Licence Agreement is a licence to use the "University Membrane" patent (Australian patent number 505494 and foreign patents) and provides an option to licence certain future University Patents relevant to the Company under the terms of this licence. In consideration of payment of \$1 by Unisearch to the Company, the Company undertook to be bound by the Licence Agreement in exactly the same way as Travenol Laboratories Pty. Ltd. had previously been bound. The licence terminates on the expiration of the last Patent which is the subject of this licence.
 - (ii) A patent transfer agreement dated October 27, 1983 between Travenol Laboratories Pty. Ltd. and the Company under which the Company purchased patents and know-how from Travenol Laboratories Pty. Ltd. in consideration for payment of \$1,900,000. (Further details of the patents are contained in Schedules A, B, D and E of the Patent Attorney's Report on page 14 of this Prospectus). At the same time, the Company granted an exclusive royalty fee licence to Travenol Laboratories Pty. Ltd. to utilize the patents in the medical field and a non exclusive royalty free licence to Travenol Laboratories Pty. Ltd. for use in their manufacture of medical products.
 - (iii) An agreement dated October 27, 1983 in which the assignment by Travenol Laboratories Pty. Ltd. of the

- Licence Agreement pertaining to medical applications in (ii) above to Baxter Travenol Laboratories Inc. was acknowledged and accepted by the Company.
- (iv) Employment Agreement dated October 27, 1983 between Denis Michael Hanley and the Company under which Mr Hanley was employed by the Company for 3 years from July 1, 1983. Under the terms of the Agreement, Mr Hanley conveys his rights to his every invention as required to the Company. Additionally, if the Company requests and makes certain payments, Mr Hanley cannot participate in any business similar to or in competition with the Company for up to two years on termination of this contract.
- (v) Same as (iv) for Michael Anthony Quinn.
- (vi) Same as (iv) for Douglas Lyons Ford.
- (vii) Same as (iv) for Eric William Anderson.
- (viii) By deed dated 9th November, 1983 the Company established an employee share purchase scheme under which Eligible Employees (as therein defined) are entitled to purchase such shares as may be determined from time to time at market price. On 26 October, 1983, the Company in Annual General Meeting approved the granting of financial assistance by the Company in connection with the implementation of the said employees purchase scheme. On acceptance of the offers referred to in sub-clause 12(b), the Company will transfer the relevant shares to the specified employees and will be owed an amount equal to the consideration payable for those shares by the Trustee of the employee share purchase scheme.
- (ix) An Underwriting Agreement between the Company and Ord Minnett, Members of the Sydney Stock Exchange Limited as Underwriters. This Agreement provides that the Underwriters may terminate the Agreement in the happening of any one or more of the following contingencies:
- (1) the Underwriters becoming aware of any material and unrectified mis-statement or inaccuracy in or omission from the prospectus;
 - (2) the Underwriters becoming aware of any material and unrectified contravention by the Company of its Memorandum or Articles of Association, the Companies (New South Wales) Code or any other material legislation or any of the Official Listing Requirements or the Australian Associated Stock Exchanges;
 - (3) the All Ordinaries Index of the Australian Associated Stock Exchanges falling below five hundred and fifty (550);
 - (4) the Company is in material and unrectified default under any of the terms and conditions of the Underwriting Agreement or any of the covenants made by it therein;
 - (5) there is any default by the Company or any other party under, or any change not approved by the Underwriter in any of the material contracts referred to in this Clause 13; and
 - (6) the outbreak of a state of war (whether war has been declared or not) involving any one or more of Australia, the United Kingdom, the United States of America, the People's Republic of China, the Union of Soviet Socialist Republics or Japan.
- (b) The Company is aware of the following contracts, being contracts to which the Company is not a party, which nevertheless the Company considers to be integral to the material contracts referred to in (a) above:
- (i) Agreement dated 27th October, 1983 being a patent and trademark transfer agreement between Baxter Travenol Laboratories, Inc. and Travenol Laboratories Pty. Ltd., a patent transfer agreement between Memtec Laboratories Pty. Ltd. and Travenol Laboratories Pty. Ltd. and a licence agreement between Unisearch Limited and Travenol Laboratories Pty. Ltd. under which Travenol Laboratories Pty. Ltd. acquired the rights sold and assigned to the Company in accordance with the agreements referred to in (a)(i) and (ii) above.
 - (ii) Agreements dated 27th October, 1983 in which certain prior licence agreements in favour of Unisearch Limited, Memtec Laboratories Pty. Ltd. and Travenol Laboratories Pty. Ltd. were cancelled by Baxter Travenol Laboratories, Inc.
 - (iii) Agreements dated 27th October, 1983 in which the Principals agreed not to compete with Baxter Travenol Laboratories, Inc. in respect of the exploitation of membrane technology in the manufacture of products for medical use.
 - (iv) The option agreements referred to in Clause 7.
14. Copies of the agreements referred to in paragraphs 12 and 13 and the Memorandum and Articles of Association of the Company (being the instrument constituting or defining the constitution of the Company) and a copy of the Companies (New South Wales) Code under which the Company was incorporated together with certified copies of the consents referred to in Clause 20 hereof may be inspected during normal business hours at the office of the Company, Blaxland House, 5-7 Ross Street, North Parramatta, N.S.W. 2151 and at the offices of Price Waterhouse, Chartered Accountants at the following addresses:
- National Mutual Centre,
12th Floor,
447 Collins Street,
Melbourne 3000
- 18th Floor,
167 Eagle Street,
Brisbane, Qld 4000
- Mount Newman House,
18th Floor,
200 George Street,
Perth, W.A. 6000
- 1st Floor,
186 Greenhill Road,
Parkside, S.A. 5063
- 7th Floor,
AMP Building,
86 Collins Street,
Hobart, Tas. 7000
- 7 Moore Street,
Canberra, A.C.T. 2601
15. The auditors of the Company are Price Waterhouse of 60 Macquarie Street, Parramatta, N.S.W. 2150.
16. The Company was incorporated as a proprietary company in New South Wales on June 18, 1982, converted to a public company on August 29, 1983 and has been carrying on business as an unlisted public company since August 29, 1983.
17. No shares shall be allotted on the basis of the Prospectus later than six months after the date of the issue of this Prospectus.
18. The share capital of the Company is not divided into different classes of shares.
19. The Company is not registered as a foreign company in any State and has not established a place of business in any state other than New South Wales.
20. Each of Dr D. H. Randerson, Price Waterhouse, Halford & Maxwell, Baxter Travenol Laboratories, Inc. and Unisearch Limited have given their respective written consents to the issue of this Prospectus with their respective reports included in the form and context in which they are included and have not withdrawn their respective consents before delivery of a copy of this Prospectus for registration.
21. (a) Except as mentioned in paragraph (b) below, no Director or expert has any interest in the promotion of, or in the property proposed to be acquired by the Company, and no Director or expert is a partner in any firm with such an interest; and no sums have been paid or agreed to be paid to any Director or expert or to any such firm in cash or shares or otherwise by any person in the case of a Director either to induce him to become, or to qualify him as, a Director, or otherwise for services rendered by him or by the firm in connection with the promotion or formation of the Company or (in the case of an expert) for services rendered by him or the firm in connection with the promotion or formation of the Company.
- (b) The exceptions referred to in paragraph (a) above are:
- (i) professional fees for services in connection with the issue will be paid by the Company to:
Price Waterhouse, Chartered Accountants, auditors of the Company;
Halford & Maxwell, Patent Attorneys; and
Dr D. H. Randerson;

Ord Minnett as the underwriters will receive brokerage and commission.

- (ii) Messrs D. M. Hanley, M. A. Quinn and D. L. Ford, directors of the Company, have been employed by the Company since July 1, 1983.
 - (iii) Directors of the Company will receive director's fees from time to time from the Company.
22. Permission has been granted for the Company to be admitted to the Official Lists of the Member Exchanges of the Australian Associated Stock Exchanges and for the shares offered by this Prospectus to be granted Official Quotation.
23. No expert whose report appears in this Prospectus has:
- (a) any shareholding in the Company;
 - (b) the rights (whether legally enforceable or not) to nominate persons to subscribe for securities in the Company; or
 - (c) the right (whether legally enforceable or not) to subscribe for securities in the Company.
24. The Directors of the Company report, after due enquiry by them in relation to the interval between 30th November, 1983 (being the last date to which accounts used in the preparation of the Investigating Accountant's Report included herein were made up) and 10th February, 1984 (being a date not earlier than 14 days before the issue of this Prospectus) that they have not become aware of:
- (a) any circumstances which in their opinion materially have

affected or will affect the trading or profitability of the Company or the value of the assets of the Company except that pursuant to the agreements specified in Clause 13 the Company has acquired certain rights in connection with the further conduct of its business;

- (b) any contingent liabilities of the Company additional to those contingent liabilities appearing in this prospectus.
- (c) the Company has not been taxed, whether as a public company or private company, in any of the five years immediately preceding the issue of the prospectus and no dividends have been declared by the Company.

This Prospectus including the Directors' Report above has been signed by the Directors of Memtec Limited:

E. W. M. Norrie

D. L. Ford

By his agent authorised in writing

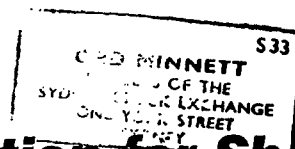
D. M. Hanley

M. A. Quinn

Dated this 10th day of February, 1984.

TO MEET THE REQUIREMENTS OF THE COMPANIES (NEW SOUTH WALES) CODE THIS APPLICATION FORM MUST NOT BE HANDED ON UNLESS ACCOMPANIED BY THE PROSPECTUS.

MEMTEC LIMITED



Application for Shares

Issue of 4,800,000 ordinary shares of 25 cents each issued at 30 cents per share, payable in full on application.

**To the Directors,
Memtec Limited**

Surname (Block Letters Please)		Given Names	
Mr. Mrs. Miss.			
Address	No.:	Street:	
City/Town:		State:	Postcode:
Number of Shares Applied for at 30 cents per share	APPLICATION MONEY ENCLOSED \$	CHEQUE DETAILS (please complete) Drawer Bank Branch	

I/We, whose full name(s) and address(es) appear above hereby apply in terms of the Company's Prospectus dated 10th February, 1984 for the number of shares shown hereon (or such lesser number of shares as may be allotted to me/us by the Company in respect of this application).

I/We agree that this application shall be irrevocable until 20th March, 1984.

I/We agree to be bound by the Memorandum and Articles of Association of the Company.

If this application is signed by an Attorney, the Attorney states he has no notice of revocation of the Power of Attorney under the authority of which this application is signed.

If the applicant is an individual

Usual Signature(s)

.....

.....

Date

If the applicant is a company

The Common Seal of

was hereunto affixed
in accordance with
its Articles of
Association in
the presence of:

All payments must be made in Australian currency and all cheques made payable to "MEMTEC LIMITED" and be crossed "Not Negotiable" and forwarded with this application to any of the addresses shown on the reverse of this application.

THE MINIMUM NUMBER OF SHARES WHICH MAY BE APPLIED FOR IS 2,000 AND THEREAFTER IN MULTIPLES OF 1,000.

No shares will be allotted or issued on the basis of the Prospectus later than 9th August 1984 being six months after the date of issue of this Prospectus.

MEMTEC LIMITED

Instructions to Applicants

In the case of joint applicants, each applicant must sign.

Where the applicant is an incorporated body, its Common Seal and Attestation Clause are to be affixed and the Attestation Clause signed by its authorised signatories.

If this form has been signed by an Attorney and the relative Power of Attorney has not already been produced to the Company, such Power of Attorney must be forwarded with this form for noting and return.

Applications should be lodged with:

Ord Minnett,
1 York Street,
Sydney, N.S.W., 2000

351 Collins Street,
Melbourne, Vic., 3000

OR

Any member firm of the Australian Associated Stock Exchanges.

Applications may be lodged at any time after the issue of this Prospectus.

Applications must be accompanied by payment in Australian currency of 30 cents per share. Cheques should be made payable to "Memtec Limited" and crossed "Not Negotiable". Application lists will open at 12 noon Sydney time on 6th March, 1984 and will remain open until 5.00 p.m. Eastern Summer Time on 20th March, 1984, subject to the right of the Directors to close the issue at an earlier date without prior notice.

TABLE OF AMOUNTS PAYABLE	
Number of Shares	Amount of Cheque
2,000	\$600
3,000	\$900
4,000	\$1,200
5,000	\$1,500
6,000	\$1,800
7,000	\$2,100
8,000	\$2,400
9,000	\$2,700
10,000	\$3,000
20,000	\$6,000
100,000	\$30,000

Glossary of Membrane Technology

- ANISOTROPIC:** Not uniform, such as altering in porosity across the thickness of the membrane.
- BIOCHEMICAL PROCESSING:** Industrial use of chemicals from living organisms — usually using enzymes.
- BIOTECHNOLOGY:** Industrial processes applied to the life sciences.
- CARTRIDGE:** Device for holding membranes.
- CFF:** Cross-flow filtration. Feed flow across the membrane, allowing continuous permeation.
- CHARGED SPECIES:** Having an electrical charge, e.g. Common salt forms positive sodium and negative chloride particles in water.
- COLLOIDAL:** Applying to particles in the ultrafiltration range of sizes (from 5 to 1,000 billionths of a metre). Usually used to describe materials like gelatin.
- CROSS LINKED RADIATION POLYMER TECHNOLOGY:** Short wave length energy, chemically joining polymer groups together.
- DIALYSIS:** Separation by selective diffusion through a suitable membrane, as in the removal of blood impurities in a kidney machine.
- ELECTRODIALYSIS:** Dialysis with electric wires each side of a membrane to attract charged species, as in removing excess salt from cows' milk.
- ENZYMES:** Natural protein enhancers of chemical reaction rates.
- FUNCTIONAL GROUPS:** Reactive chemical groups such as acid groups.
- GENETIC ENGINEERING:** The manipulation of the hereditary genes for industrial and medical use.
- HYDROPHILIC:** Water wettable (opposite of hydrophobic).
- HYDROPHOBIC:** Water repellent (opposite of hydrophilic).
- MOLECULES:** Combinations of atoms.
- MEMBRANES:** Thin porous structures — usually sheets or porous pipes (so-called hollow fibres) when used for separations.
- POLYAMIDE (NYLON):** Colloids made from the reaction of acids with amines.
- POLYMER:** Large molecules made from many small molecules.
- POROUS:** Containing interconnecting small holes thus allowing permeation by fluids.
- PERMEATION:** Penetration by a fluid.
- REVERSE OSMOSIS:** Rejecting salts in high pressure salt water by a special membrane to allow purer water to pass through it.
- TRANSPORT IONS:** Charged particles carrying desired substances.
- ULTRAFILTRATION:** Low to medium pressure membrane removal of particles measuring from 5 to 1,000 billionth of a metre.