



1997/8 EUROPEAN MSPPSA SERIES

ELECTROPHORETIC GEL MEDIA

AN ANALYSIS OF
MARKET SIZE & GROWTH,
MARKET SHARE,
PURCHASE PLANS &
SUPPLIER ASSESSMENT FOR THE
LIFE SCIENCE RESEARCH MARKET

A Multi-Client Report

by
PhorTech International
San Carlos, California

May 8, 1998

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I. BACKGROUND

A. SURVEY OBJECTIVES

The purpose of this survey was to provide the management of our client companies with an analysis of the current European market for electrophoretic gel media, (including ready-made gels as well as media for hand-cast gels) and of the attitudes of a cross section of researchers who utilize gel electrophoresis in their work.

All names stemmed from one source, a random cross-section of 3,000 European life science researchers who have published papers on electrophoresis obtained from the Sheffield Academic Press. In order not to flood the European market, we staggered the mailing into three groups, sent out over a period of several months. The surveying was blind, with no reference made to any clients for the survey. To encourage respondents to express themselves freely and without bias, the survey was anonymous, and made frequent use of open-ended questions.

At the beginning of the survey, respondents were asked whether or not they currently analyzed protein or nucleic acid samples by electrophoresis in their work. This initial screening question then led to a more specific probe. We queried respondents whether they used ready-made gels for some or all of their work and what proportion this represented. The respondents who answered positively were directed to detailed audit questions. Users were asked to itemize all ready-made gels they used, providing the brand, type, percent acrylamide, number of gels used per month, and the approximate cost per gel separately for native PAGE, SDS PAGE, gradient PAGE, electrofocusing, DNA PAGE and sequencing categories. Later on in the survey, respondents were also asked how many hand-cast gels they used monthly, the gel dimensions and thickness, as well as the percent and brand of acrylamide or agarose they used for these categories as well as for DNA/RNA sequencing gels, and dsDNA fragment analysis gels. For each of these audit questions, users were also asked to provide the basis for their responses, whether it be individual use, the research group or the entire department. From this data, we can extrapolate to the current size of the European market for ready-made and hand-cast gel media.

Respondents using ready-made gels were asked to compare their performance with hand-cast gels and whether, when they first selected these gels, the gels fit pre-existing chambers or whether they had to acquire new chambers to run the gels. Respondents were questioned regarding their reasoning behind choosing these brands of gels, whether there were any brands of gels they would not buy and to explain why. They were then asked to detail desired improvements in ready-made gels and to select the highest-rated manufacturer in six key areas. In particular, respondents were asked to choose the top-ranked supplier among six leading ready-made gel manufacturers (or a

seventh write-in choice) in the following areas: best value for money, most consistent quality, highest resolution, fastest delivery, best application support, and widest product range.

Those who answered negatively to the use of ready-made gels were next asked why they might not have used ready-made gels up to now. Respondents were asked about their hand-cast gel practices, beginning with whether they usually purchased pre-mixed liquids, premixed powders, or unmixed powders, why they chose particular suppliers of gel media, whether there were suppliers they wouldn't buy from and why. They were then asked to assess seven gel media suppliers (an eighth write-in candidate) with regards to four areas including best value for money, most consistent quality, fastest delivery, and easiest to use. Finally, respondents were also asked about desired improvements specifically for hand-cast gel media.

All user-respondents were also asked a question regarding the forecast percent change in their use of ready-made and hand-cast gels over the coming twelve months. The demographic screens used to characterize respondents included scientific discipline and type of organization as well as an itemization of the electrophoretic techniques presently used.

Major objectives of the survey were to estimate the present size of this market and to determine the present market share for major gel categories, based upon the projected unit and dollar volume of ready-made and hand-cast gels, and to measure the market's projected near-term growth rate. Finally, a key objective was to identify the leading suppliers in terms of units sold and estimated dollars spent on both ready-made gels and hand-cast gel media.

The audit should permit the evaluation of our clients' present market positions, identify marketing strengths and weaknesses, and suggest strategies to develop or improve sustainable competitive advantage.

This report is the seventh 1997/8 study in a growing series of multi-client market research reports. We plan to continue the series, alternating between U.S. and overseas markets, depending upon our clients' suggestions and support.

The following titles have already been released in the U.S. series:

DNA Sequencing
Molecular Biology Reagent Systems, Vol. 1
Molecular Biology Reagent Systems, Vol. 2
Molecular Diagnostics.

Further 1997/8 reports covering the U.S. market to be released over the coming months that clients might find useful include:

Cell & Tissue Culture
Cytokines & Growth Factors
HPLC in the Life Sciences
Monoclonal Antibodies.

Five European reports are also underway for 1997/8. The following titles have already been released in the European series:

DNA Amplification
DNA Sequencing

Other 1997/8 European reports which clients might find useful are:

Densitometry & Image Analysis
Microplate Equipment.

These titles were also available covering the U.S. market in 1995/6.

Beginning this year, we are also introducing four reports covering the Far East market. These are:

DNA Amplification
DNA Sequencing
Molecular Biology Reagent Systems, Vols. 1 & 2.

Clients wishing to know publication dates for any of these reports, or wanting to read summaries of the 30+ earlier reports in this series are invited to visit our Web site at: www.phortech.com

B. SURVEY METHODOLOGY

We utilized a single source of names, Sheffield Academic Press (SUBIS), which consisted of 3,000 European researchers who had recently published papers on electrophoresis. This contained a high proportion of users, many of them at the doctorate or principal investigator level with a high degree of purchasing power, which should provide better statistics regarding market share, techniques and supplier evaluations.

The names were randomly separated into three mailings which were sent over a three month period. The first group of 989 questionnaires were mailed out on August 23rd, 1997 the second group of 1,006 on September 25th and the last group of 1,004 on October 13th. The survey was held open until January 26th, 1998 to allow sufficient time for responses to be collected.

Each participant received an introductory letter, a two-page legal-sized survey, and an international business reply envelope addressed to our UK field office. No reference was made to any of our clients as sponsors of the survey.

To improve the response rate, the cover letter mentioned a contest give-away with more than \$2000 in prizes including two computers (an IBM ThinkPad and a Hewlett Packard palmtop computer), a US Robotics Pilot electronic organizer, two laser pointer-pens, five Olympus pocket tape recorders, and 25 Mag-Lite flashlights. In addition, a crisp new dollar bill was included in each survey package. No other inducements were employed and no follow-up mailings were used.

Undeliverables to the first mailing were measured at 1.0%, totaling 10 returns. By the close of the survey, 136 responses had been received for a response rate of 13.8%. There were 14 undeliverables to the second mailing (1.4%), and we received 150 responses for a response rate of 15.1%. The last mailing yielded 22 undeliverables (2.2%) and we received a total of 137 responses for a response rate of 14.0%. In total, there were 46 undeliverables (1.5%) and 423 responses for a rate of 14.3%. We also received an additional four responses through our website.

We did not observe any survey fatigue in this questionnaire, and felt that respondents spent considerable time explaining their positions on the open-ended questions. We have no reason not to believe that the survey is representative of the entire European population of electrophoresis gel users.

Based upon 427 responses, the overall statistical results presented in this report are accurate to within ± 4.7 percentage points at the 95% confidence level. In cases where we only calculate the percentage of the 334 respondents that currently use electrophoretic gels, the results are accurate to $\pm 5.4\%$. In

contrast, from this randomly-selected sample, we found only 73 respondents currently using ready-made gels. The statistical results for this segment are accurate to within $\pm 11.5\%$.

In our experience, 95% confidence levels are appropriate primarily for scientific experiments. Most business people making decisions are content to be right more often than they are wrong. In this case, a 65% confidence level, (in which you would be right twice as often as you would be wrong) is appropriate. Conveniently, 65% confidence levels are nearly exactly one half the size of the 95% level, thus our 65% levels would be $\pm 2.4\%$ for all respondents and $\pm 2.7\%$ for all users, and $\pm 5.7\%$ for ready-made gel users.

According to the binomial distribution theory, these values are valid when the measured event has about a 50% probability. When the measured event is considerably more rare than this, the corresponding confidence intervals get smaller. On the other hand, these confidence intervals are valid for answers based upon the complete pool of respondents. When analyzing data for a group that includes only a small segment of respondents, the answers are less certain and confidence intervals are correspondingly larger.

In the report, we will calculate more exact individual confidence intervals when appropriate. In our comments, we will note whether given differences are significant at either the 65% or 95% level.

II. DEMOGRAPHIC SEGMENTATION

QUESTION 0.

Question:

On the contest entry form, we asked respondents to fill in their names and addresses. In cases where there was no contest entry form, we tracked the country of origin of the postmark.

Rationale:

For statistical purposes, we wanted to track the geographic distribution of respondents within Europe. Since all names were random selections from one source, we expect that all three mailings show similar geographic distribution. However, we present the specifics for informational value.

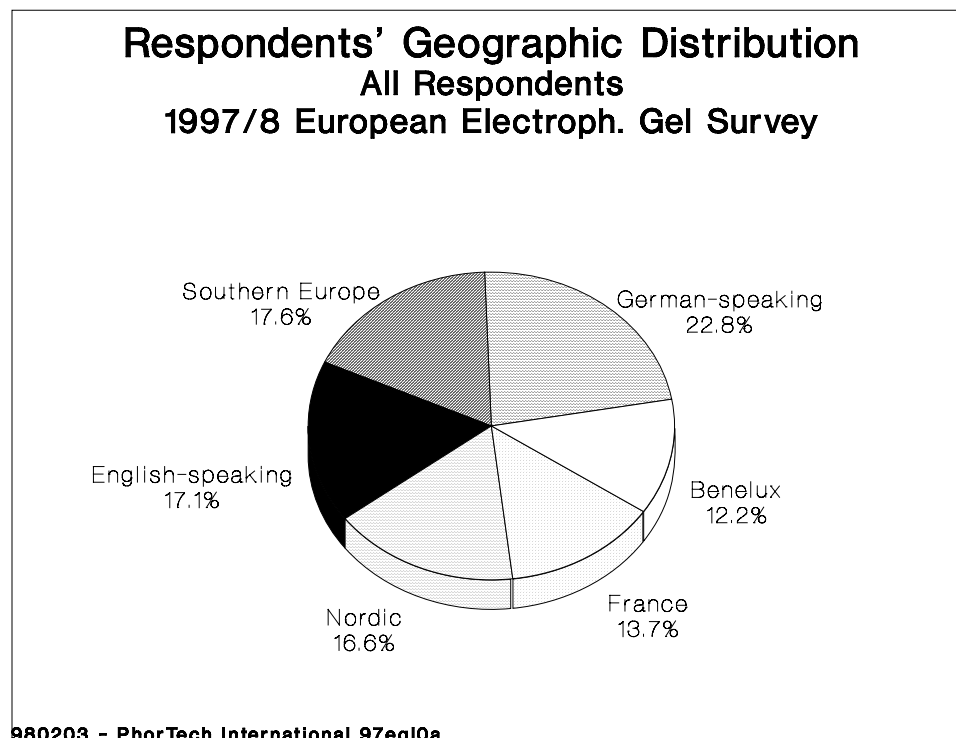
Results:

In the table below, we show the geographic distribution of names from each of the three mailings used in this survey, grouped by proposed geographic region.

Region	SUBIS 1	SUBIS 2	SUBIS 3	Total	%
English-speaking	161	170	170	501	16.7
England	118	127	125	370	12.3
Ireland	5	4	5	14	0.5
N. Ireland	5	5	6	16	0.5
Scotland	28	28	28	84	2.8
Wales	5	6	6	17	0.6
German-speaking	252	254	255	761	25.4
Austria	19	19	20	58	1.9
Germany	191	193	193	577	19.3
Switzerland	42	42	42	126	4.2
France	187	189	189	565	18.8
Southern Europe	149	152	150	451	15.0
Italy	81	84	83	248	8.3
Portugal	5	5	4	14	0.4
Spain	63	63	63	189	6.3
Benelux	103	103	103	309	10.3
Belgium	34	34	33	101	3.4
Netherlands	69	69	69	207	6.9
Nordic	136	138	138	412	13.7
Denmark	27	28	28	83	2.7
Finland	32	32	32	96	3.2
Norway	17	17	17	51	1.7
Sweden	60	61	61	182	6.1
TOTAL	989	1006	1004	2998	100.0

We can see that the SUBIS list is quite well-rounded and does not show the typical preponderance of English-speaking scientists. In fact, German-speaking regions accounted for the largest group, followed by France, English-speaking and southern European countries.

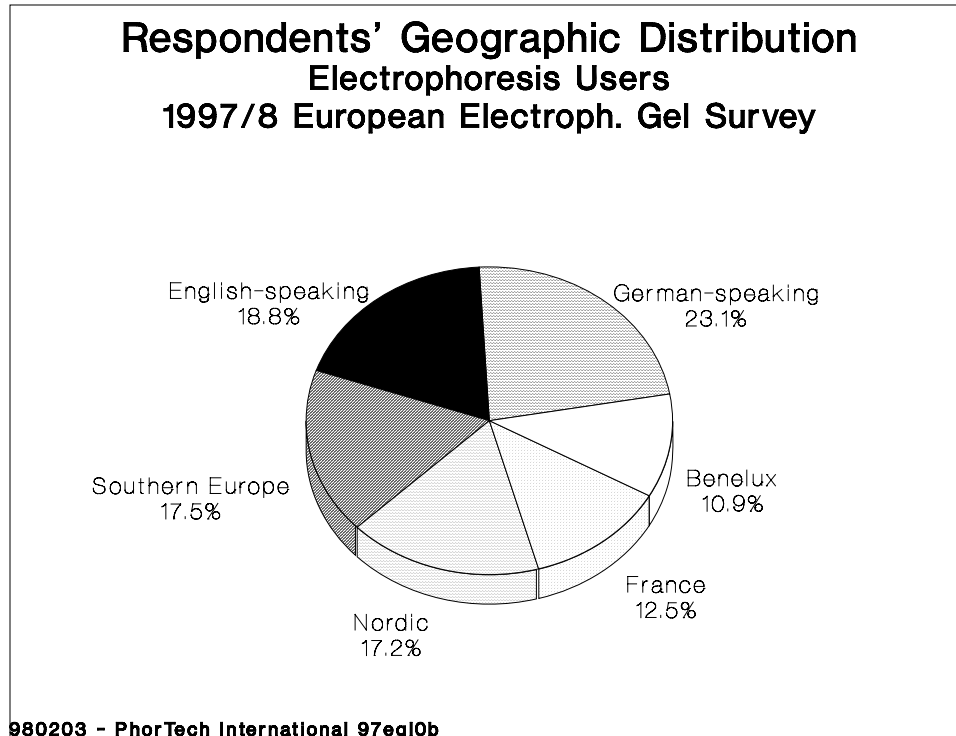
In the pie chart below, we show the geographic regions from which the 389 respondents from known countries stemmed.



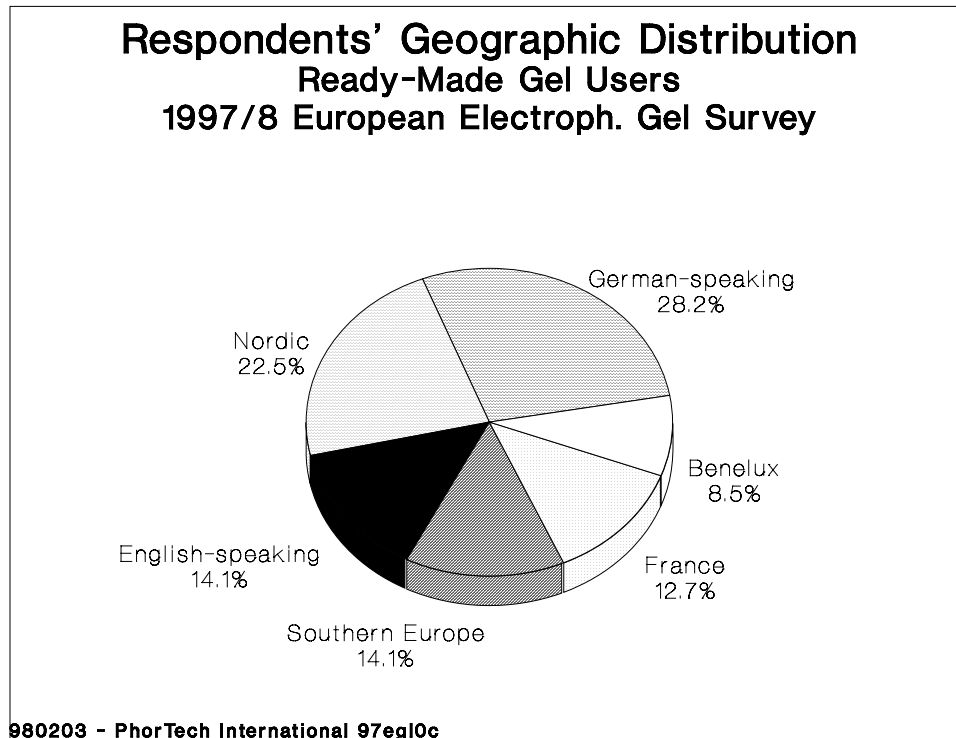
Analysis:

Comparing the graph with the corresponding data from the table, we see that the distribution of respondents really shows no significant differences with the original distribution of surveys. Unlike previous year's results, English-speaking respondents were not significantly more likely to respond to the survey than their other European colleagues.

For clients' information, we also present the geographic distribution of only those respondents currently performing gel electrophoresis. This is shown in the pie chart on the following page in which we see English-speaking countries moving into second place, but overall percentages remaining fairly stable.



The graph below portrays the geographic distribution of only the small group of ready-made gel users.



The most notable change here is the movement of the Nordic region to the second place position, an increase of five percentage points. In fact, the

German-speaking region is the only other one which see a considerable gain in percentage compared to ready-made gel users. But because this is based on only 71 respondents, this is not a significant difference.

VIII. THE QUESTIONNAIRE

12. If you have not used ready-made gels up to now, please indicate the reason(s) why:

13. For your hand-cast gels, in which form do you usually purchase your gel media products?

Pre-mixed liquid Premixed powder Unmixed powder

14. How many gels do you cast per month? What are the dimensions and percentage monomer of those gels? Which brand and type of acrylamide or agarose do you usually purchase?

	# Gels per month	--Gel Size-- std mini		Gel Thickness	% Acrylamide or Agarose	Brand of Gel Media
Native PAGE:		<input type="checkbox"/>	<input type="checkbox"/>		%	
SDS PAGE:		<input type="checkbox"/>	<input type="checkbox"/>		%	
Gradient PAGE:		<input type="checkbox"/>	<input type="checkbox"/>		%	
Electrofocusing:		<input type="checkbox"/>	<input type="checkbox"/>		%	
DNA/RNA Seq.:		___ X ___			%	
dsDNA Fragment Analysis (>2K bp):		___ X ___			%	

15. Why did you choose these brands of gel media?

16. Are there brands of gel media that you wouldn't buy? If so, which brands and why?

No Yes, because _____

17. From the alphabetic list of gel media suppliers, please mark the one you would rank highest in each area. (You may choose a supplier more than once).

Criteria	Amresco	Bio-Rad	FMC	Fisher	Kodak	Pharmacia	Sigma	Other*
a. Best value for money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Most consistent quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Fastest delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Easiest to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*please specify

18. What percent change do you foresee in your use of hand-cast gel media in the coming 12 months?
(Please enter an estimate. indicate if positive or negative)

_____ % Increase Decrease No change

19. In general, what improvements would you like to see in hand-cast gel media?

20. Which electrophoretic techniques do you presently use? (Please check off all that apply)

SDS/PAGE techniques Electrofocusing, IEF 2-D electrophoresis
 Electro blotting DNA submarine gels Pulsed field techniques
 DNA sequencing SSCP Other: _____

21. How would you best describe your organization?

Academia Hospital/med school Industry Gov't agency Private

22. How would you best describe your principal area of expertise? (Please check ONE box)

Biochemistry Biology Cell biology Immunology Med. sciences
 Microbiology Molecular biology Neuroscience Other: _____

Thank you for completing our survey.
Now, please fold and return questionnaire in postage paid envelope.