

PIPE RESOURCE ORGANIZATION
MARKET RESEARCH SURVEY

Prepared for:

The Pipe Resource Organization of The Vinyl Institute

September 1992

Cambridge Associates
5 Herrick Mews
Cleveland, Ohio 44106

CTL029079

INTRODUCTION

The Pipe Resource Organization of The Vinyl Institute promotes the use of PVC pipe in water distribution, waste water handling and plumbing applications. Through its public relations agency, Edward Howard & Co., it has been conducting a communications program to further this end.

Objectives

The primary objectives of this program have been:

- To promote the advantages of PVC pipe in large diameter applications
- To correct misperceptions about the performance of PVC pipe

The primary audiences that this program has been directed toward are:

- Public works officials
- Consulting engineers
- Code makers, contractors and influentials
- Pipe manufacturers

The objectives of this research study were as follows:

- To determine the impact of the communications program conducted by The Vinyl Institute and The Pipe Resource Organization in terms of—

Correcting misperceptions about the performance of PVC pipe

Promoting the good performance properties of PVC pipe

- To determine the recognition of the efforts of The Vinyl Institute and The Pipe Resource Organization in providing information about PVC pipe;
- To determine the best communication channels for delivering information about PVC pipe to The Vinyl Institute's and the Pipe Resource Organization's target audiences.

CTL029080

Research Method and Name Sources

A survey of industry members was carried out using personal telephone interviews with executives and managers from the Pipe Resource Organization's target audiences. Two sources of names were available for this project. The Pipe Resource Organization maintains its own mailing list. The names of individuals on this list were utilized in this study as described below. The Pipe Resource Organization list was made available in two sections; one was a list of people who had made inquiries for the organization's materials, and the second was a list of specific companies that manufacture PVC pipe. Only individuals who had been on the Pipe Resource Organization's list since 1991 were included in the survey in order that they might have at least six months exposure to the organization's communications.

In addition, a list of names randomly selected from the circulation list of AWWA (American Water Works Association) Journal was obtained from the publisher. The names supplied by AWWA Journal were drawn from their readers in public water supply utilities, government, consulting firms and contractors.

Sample Make-up

In total, 250 industry interviews were completed for this survey. In the initial part of the questionnaire, respondents were screened to determine their involvement with water pipe. Fifty interviews were conducted from both the Pipe Resource Organization list and the AWWA Journal list with individuals who work for a public water supply utility and who are involved with the specification, recommendation, design, installation or use of water pipe. This accounted for 100 of the 200 interviews conducted. These people are referred to in the text as "public utility specifiers/users."

Another 50 interviews were conducted from both the Pipe Resource Organization list and the AWWA Journal list with individuals who work as consulting engineers on water supply projects and who are involved in the specification, recommendation, design, installation or use of water pipe. This accounted for another 100 of the 250 interviews completed. These people are referred to in the text as "consulting engineers."

Seventeen interviews were conducted with contractors, those identified as being involved in the installation of water pipe. Two of these individuals came from the Pipe Resource Organization list, and 15 from the AWWA Journal list. These people are referred to in the text as "installers."

Eighteen interviews were conducted with individuals who are involved in making codes for the usage of water pipe. In this case, 9 names came from the Pipe Resource

Organization list and 9 from the AWWA Journal list. These people are referred to in the text as "code makers."

Finally, 15 interviews were conducted with individuals who are involved with the design or manufacture of water pipe. All of these names were drawn from the separate list of manufacturers supplied by the Pipe Resource Organization. These people are referred to in the text as "manufacturers."

While the individuals interviewed were screened for the work functions described above, this does not mean to imply that some individuals could not be involved in other activities or more than one activity.

For example, someone who was involved in making codes could also be involved in installation. However, the priority in screening was such, that if an individual indicated he worked for a public water supply utility and was involved in specification, recommendation, design installation or use of water pipe, he was assigned to that category and was not queried further as to whether he was involved in consulting engineering, code making, installation or manufacturing.

Those who were identified as consulting engineers were individuals who said they were not involved in specification, recommendation or design of products, but were involved in consulting engineering. They were not queried as to whether they were involved with code making, installation or manufacturing of water pipe.

Those who were identified as being involved in code making were those who said they were not involved in specification, recommendation or design, installation or use of water pipe and were not consulting engineers. Those who were identified as installers were those who said they were not working at a public water supply utility and were not involved in specification, recommendation, design or use of water pipe, or in consulting engineering or in code making.

Those who were identified as manufacturers were not subject to this screening because they were drawn from the list identified by the Pipe Resource Organization as manufacturers, and thus, were only screened to assure that they were indeed involved in the design or manufacturer of water pipe. They were not asked about any activities involved in specification or recommendation, consulting engineering, code making or installation.

It should also be pointed out that individuals whose names were drawn from the AWWA Journal list could also be on the Pipe Resource Organization list, just as those people drawn from the Pipe Resource Organization list could also be subscribers of the AWWA Journal. However, the responses to questions about awareness of The Vinyl Institute indicates a low level of crossover between the two lists.

Of the total of 250 industry interviews completed with individuals in the electrical industry, 126 or 50 percent were drawn from the Pipe Resource Organization list and 124 or 50 percent were drawn from the AWWA Journal list.

It should be pointed out that there were several differences in the makeup of the two lists. First of all, from a geographic distribution standpoint the Pipe Resource Organization list appears to be more heavily weighted toward the New England and Atlantic Region (New England states and New York, New Jersey and Pennsylvania). Twenty-nine percent (29%) of the individuals interviewed from this source were located in this region. In comparison, only 20% percent of those interviewed from the AWWA Journal list were from this geographic area. Those interviewed from the Pipe Resource Organization list appeared to underrepresent the Central Region (this represents the area from Ohio west through the Great Plains area of North Dakota, South Dakota, Nebraska and Kansas) and the Mountain and West Coast Region (the three West Coast states plus the Mountain states from Montana south through Wyoming, Colorado and New Mexico).

Region	AWWA Membership	Interviews from AWWA List	Interviews from Pipe Resource Organization List	Total Interviews
New England and Atlantic	19%	20%	29%	25%
Central	24%	25%	20%	22%
South/Southwest	30%	30%	34%	32%
Mountain and West Coast	26%	25%	17%	22%

In terms of job titles, the two lists were also somewhat dissimilar. The AWWA Journal was heavily weighted toward individuals with titles of heads or managers of water bodies (44%) or company officers (41%). The Pipe Resource Organization list was more evenly distributed, with 21 percent having head or manager of water body positions, 21 percent being company officers, and 21 percent being engineers in the private sector.

CTL029083

Title	AWWA Journal Interviews	Pipe Resource Organization Interviews	Total Interviewees
Heads/Managers of Water Bodies	44%	20%	32%
Company Officers	41%	21%	31%
Engineers-Private Sector	5%	21%	13%
Engineers-Government	2%	12%	7%
Managers-Government	5%	5%	5%
Managers-Private Sector	0	9%	4%
Engineers-Water Bodies	0	6%	3%
Miscellaneous/Other	4%	4%	44%

Timing of Interviews

These interviews were conducted between the period of July 2, 1992 and July 17, 1992.

Questionnaire

While the same basic questionnaire was used in all interviews, the language varied depending on the work function of the interviewee. For example, manufacturers were asked if PVC was used in the water pipe their company manufactures, while contractors were asked if PVC pipe was used in the water distribution systems their company installed. The full questionnaires used are found at the end of this report.

The questionnaire referred jointly to The Vinyl Institute and the Pipe Resource Organization. However, respondents mainly answered only with the name "The Vinyl Institute." For purposes of simplicity, only that name is used in the text.

In the analysis of the response to each question, if the exact same question was asked of each audience, only one version is shown. If the question language varied, the individual questions are given together with the specific audiences to whom they were addressed.

Data Tables

The results of this survey have been extensively cross tabulated. The data tables include tabulations by the following factors:

CTL029084

Title	Segments	Description	Question Source
List	AWWA Journal Pipe Resource Organization	List source of respondent	Q. Name Source
Aware of VI	Yes No	Aware of Vinyl Institute or Pipe Resource Organization on an aided or unaided basis	Q.7 & 11
Use/ Specify PVC Pipe	Yes No	Whether using or specifying PVC pipe	Q. 2
Work Functions	Public Utility Specifiers/Users Consulting Engineers Code Makers Installers Manufacturers	Work function as identified in screening	Q. A-D
Region	New England and Atlantic Central South and Southwest Mountain and West Coast	Location of Respondent	Q. State
Familiarity with PVC pipe	Extremely + Very Somewhat Not too + Not at all	Familiarity of respondent with the use of PVC pipe for water distribution.	Q. 1
Attitude on using PVC pipe	Favorable - Extremely + Very + Somewhat Neutral - Neither favorable nor unfavorable Unfavorable - Extremely + Very + Somewhat	Attitude towards using or specifying PVC pipe.	Q. 3

CTL029085

Title	Segments	Description	Source
Change in attitude	More favorable About the same	Whether respondent's attitude toward using PVC pipe is more favorable today than it was three years ago. Less favorable category not included in table because of only 7 such responses.	Q. 5
Change in informed	More informed About the same	Whether respondent is more informed about the properties of PVC pipe today than he was three years ago. Less favorable category not included in table because of only 3 such responses.	Q. 6
Title	Head/Manager Water Body Company Principal- Owner, president, vice president, etc. Engineer Private Sector	Leading job titles. Other job categories were named in the surveys, but the number of responses for each of these others was less than 11.	Q. Title

As pointed out earlier, the language of the questions varied with the audience. For simplicity purposes and because space for titles is limited, the language used on the data tables is from the Public works officials' questionnaire.

The number of data tables (47) and their length prohibited the full tables from being bound in this report. Summary or abbreviated tables are given with the text. A separate volume with the complete data tables is available.

CTL029086

Statistical Precision

With the samples employed, the results of this survey have the following statistical precision:

Sample	Precision
250	$\pm 5\%$
196-190	$\pm 6\%$
157-141	$\pm 7\%$
126-100	$\pm 8\%$
80-74	$\pm 9\%$
62-51	$\pm 11\%$
38-32	$\pm 14\%$
18-15	$\pm 20\%$

Trade Editor Interviews

Six telephone interviews were conducted with editors of industry trade journals from a list of 11 editors supplied by Edward Howard & Company.

The interview guide used for these interviews followed the general outline of the survey questionnaire. A copy of this guide is found at the end of this report.

Interviewed were:

Nancy Zeilig, Editor
American Water Works Journal

Ron Rosencrans, Editor
Underground Focus

Dave Hodges, Editor
The Florida Specifier

Greg Norton, Managing Editor
Pipelines & Utility Construction

Edward Rodie, Editor
Public Works

Jim Harrington, Technical Editor
Plastics in Building Construction

CONCLUSIONS

CTL029088

CONCLUSIONS

1. The Vinyl Institute's communications program is reaching its audience.

- Awareness of The Vinyl Institute among those on the Pipe Resource Organization mailing list is high - 67 percent of those interviewed from the Pipe Resource Organization list were aware of The Institute.

However, only 16 percent of those interviewed from the AWWA Journal list were aware of The Institute.

On an overall basis, 42 percent of the total group surveyed knew of The Vinyl Institute on either an aided or unaided basis. (Q.11, pg. 43) This compares with 60 percent awareness of Unibell. (Q.10, pg. 41)

Three-fourths of people who are aware of The Institute recalled having seen or having received information on PVC pipe from the organization - 75%. (Q.12, pg. 45)

- Articles or advertising on successful water installations or distribution systems had very good awareness.

Over seven out of ten (72%) of all those interviewed recalled seeing trade journal articles on successful installations or distribution systems using PVC pipe. (Q.8, pg. 37)

Trade journal advertising with case histories of successful installations or distribution systems was recalled by 69 percent. (Q.9, pg. 39)

- The Vinyl Institute's communications have increased knowledge and changed attitudes.

Over eight out of ten (81%) of those who recalled seeing or receiving information on PVC pipe from The Vinyl Institute say that this material increased their knowledge of PVC's performance characteristics Very much or Somewhat. (Q.12a, pg. 47)

Seventy-seven percent say that this material has contributed to having a more favorable attitude toward using PVC pipe. (Q.12b, pg. 50)

Moreover, 42 percent of all those surveyed, whether they were aware of The Vinyl Institute or not, feel more informed about PVC pipe today than they were three years ago. (Q.6, pg. 33) Nineteen percent have developed a more favorable attitude toward using PVC. (Q.5, pg. 29)

However, because familiarity with PVC pipe is uniformly strong, there was no difference in familiarity between those aware of The Institute and those not aware of it. (Q.1, pg. 19)

- On most measures of evaluation those interviewed from the Pipe Resource Organization list and those aware of The Vinyl Institute are more positive about PVC pipe and rate it significantly higher.

	PRO List/ AWWA Journal List	Aware VI/ Not Aware
Favorable attitude	75%/65%	74%/66% (Q.3, pg. 24)
Attitude changed	25%/13%	26%/15% (Q.5, pg. 29)
More informed	49%/35%	52%/35% (Q.6, pg. 33)
Overall Excellent or Good rating	88%/77%	88%/78% (Q.14, pg. 54)

2. The basic premise of The Vinyl Institute communications is well proven.

- By communicating information on PVC pipe, industry members become more familiar with it and better informed about PVC pipe.

Those more familiar with the use of PVC pipe consistently were more positive about PVC pipe and gave it significantly higher ratings.

For example, those Extremely or Very familiar with PVC pipe give it significantly higher ratings on six out of ten characteristics than those just Somewhat familiar with PVC pipe. (Q.15, pg. 56)

Ninety percent of those Extremely or Very familiar with PVC pipe rated its overall performance as Excellent or Good compared with 74 percent of those who are just Somewhat familiar. (Q.14, pg. 54)

Those more informed about PVC pipe are more likely to use it.

Those who have become more informed about PVC pipe over the last three years are three times as likely to have become more favorable towards using PVC pipe (31%), than those who haven't become better informed about the product (10%). (Q.5, pg. 29).

- Having more information and being more familiar produced fewer people with Don't Know or neutral responses on rating questions and more with positive scores.
3. Familiarity with the use of PVC pipe is generally uniformly high, and attitudes towards its use and specification are quite good. For a significant percent, attitudes are more favorable today than three years ago and people are more informed about PVC pipe. The overall performance of PVC pipe is rated highly.
- 92% - Extremely, Very or Somewhat familiar with the use of PVC pipe (Q.1, pg. 19)
 - 70% - Favorable attitude toward using PVC pipe
 - 18% - Neither favorable nor unfavorable
 - 12% - Unfavorable (Q.3, pg. 24)
 - 42% - More informed about the properties of PVC pipe than three years ago
 - 56% - Informed about the same degree
 - 1% - Less informed (Q.6, pg. 33)
 - 19% - More favorable attitude toward using PVC pipe than three years ago
 - 76% - About the same attitude
 - 3% - Less favorable attitude (Q.5, pg. 29)
 - 83% - Overall performance rated Excellent or Good
 - 12% - Overall performance rate Fair or Poor (Q.14, pg. 54)
4. Non-users or non-specifiers of PVC pipe are not as sold on PVC's performance or properties. They are less familiar with the product and less favorable towards its use than users or specifiers. They show no difference in change of attitude towards using or being informed about PVC over the last three years than users or specifiers. They are also no different than users or specifiers in their awareness of The Vinyl Institute.

- Familiarity with PVC pipe among non-users or non-specifiers stood at 75 percent compared to 97 percent for users or specifiers. (Q.1, pg. 19)

Forty-three percent of non-users or non-specifiers have an unfavorable attitude toward using PVC pipe, while 80 percent of users or specifiers are favorably inclined. (Q.3, pg. 24)

Less than half of non-users or non-specifiers (47%) rated PVC pipe's overall performance as Excellent or Good, compared to 93 percent of users or specifiers with this opinion. (Q.14, pg. 54)

- Both users or specifiers and non-users or non-specifiers concurred in rating PVC pipe Excellent or Good on Weight and handling ability and Fair or Poor on Ease of locating PVC pipe after it has been installed in the ground.

Where they differed was that non-users and non-specifiers were much less favorably inclined towards PVC pipe's Strength, as well as its Durability, its Tapping properties, its Resistance to leaching, its Resistance to permeation, and its Ease and economy of installation. (Q.15, pg. 56)

EXCELLENT PLUS GOOD SCORES			
Characteristic	Users/ Specifiers	Non-users/ Specifiers	Difference
Strength	78%	27%	+51*
Durability	81%	45%	+36*
Tapping properties	64%	29%	+35*
Resistance to leaching	81%	49%	+32*
Resistance to permeation	77%	47%	+30*
Ease and economy of installation	95%	69%	+26*
Resistance to corrosion	99%	86%	+13*
Resistance to electrical, electrostatic and galvanic interaction	96%	84%	+12*

*Difference statistically significant

- There was no difference between non-users or non-specifiers and users or specifiers in reporting a favorable change in attitude towards PVC pipe over the last three years (Q.5, pg. 29) or in becoming more informed about the product. (Q.6, pg. 33)
 - The same percent of both groups are aware of The Vinyl Institute. (Q.11, pg. 43)
 - Non-users and non-specifiers are much more likely to be located in the New England and Atlantic Region (31%) and the Central Region (30%) than in the rest of the country (11%). (Q.2, pg. 21)
 - Overall, 20 percent of those surveyed were non-users or non-specifiers of PVC pipe. (Q.2, pg. 21) The principal reason given for not using or specifying was the preference for other materials, mainly ductile iron (37%). Another 14 percent reported problems with PVC on strength or breaking or cracking. (Q.2a, pg. 23)
5. Concern about the effect of PVC pipe on water quality does not seem to be a major problem.
- Of the small group (29 people) who have an unfavorable attitude towards using PVC pipe, only 3 or 10 percent gave reasons concerning water quality. (Q.4a, pg. 28)
 - Of those who said they do not use or specify PVC pipe (51 people), just 2 or 4 percent cited concerns about leaching. (Q.2a, pg. 23)
 - Only 4 percent of all those surveyed said they have a great deal of concern about the effect of PVC on water quality and are less inclined to use or specify it. Most people (81%) said they have either no concern or just some concern about the effect of PVC on water quality, while another 14 percent have a moderate concern, but still use or specify PVC. (Q.16, pg. 88)
6. The Vinyl Institute is using the best regarded information channels in its program.
- Trade journal articles and Industry newsletters were the top rated sources in terms of receiving useful information on water pipe, well ahead of Trade show exhibits, Presentations at industry meetings and Trade journal advertisements. (Q.17, pg. 90)
- | | |
|------------------------|---|
| Trade journal articles | - 81% Excellent or Good
18% Fair or Poor |
| Industry newsletters | - 63% Excellent or Good
31% Fair or Poor |

Presentations at industry meetings - 54% Excellent or Good
26% Fair or Poor

Trade show exhibits - 54% Excellent or Good
32% Fair or Poor

Trade journal advertisements - 53% Excellent or Good
44% Fair or Poor

7. Knowledge of PVC's properties is good, but there is still work to be done to improve matters.

- When asked what are PVC's best properties for water distribution, only few properties or advantages of PVC pipe stand out strongly in people's minds. The highest ranked characteristics - ease, economy and speed of installation and corrosion resistance - were named by 45 percent and 44 percent on an unaided basis. Mention of the next highest ranked properties - low cost and light weight - dropped to 28 percent and 25 percent respectively. (Q.4, pg. 26)
- When rating PVC pipe performance characteristics, there were four where better than 90 percent gave an Excellent or Good rating. (Q.15, pg. 56)

Weight and handling ability - 98% Excellent or Good

Tapping properties - 96% Excellent or Good

Resistance to electrical, electrostatic
and galvanic interaction - 94% Excellent or Good

Ease and economy of installation - 90% Excellent or Good

There were three of the characteristics where over one in four rated PVC pipe as Fair or Poor. Ease of locating PVC pipe after it has been installed in the ground is a particular problem with three out of four judging PVC pipe to be Fair or Poor in this regard. However, only one person gave this as a reason for not using PVC pipe.

Strength - 28% Fair or Poor

Tapping properties - 28% Fair or Poor

Ease of locating PVC pipe after it has
been installed in the ground - 74% Fair or Poor

RATINGS OF CHARACTERISTICS			
Characteristics	Excellent Plus Good	Fair Plus Poor	Don't Know
Weight and handling ability	98%	0%	1%
Resistance to corrosion	96%	2%	1%
Resistance to electrical, electrostatic and galvanic interaction	94%	2%	3%
Ease and economy of installation	90%	7%	3%
Resistance to leaching	74%	8%	16%
Durability	73%	18%	7%
Resistance to permeation	71%	13%	13%
Strength	67%	28%	4%
Tapping properties	57%	28%	13%
Ease of locating PVC pipe after it has been installed in the ground	14%	74%	10%

- The New England and Atlantic Region and the Central Region are less supportive of PVC pipe than other areas.

Familiarity with PVC pipe is high across all geographic regions. However, use or specification is lower in the New England and Atlantic Region (67%) and the Central Region (68%), that it is in the South and Southwest Region (88%) and Mountain and West Coast Region (89%). (Q.2, pg. 21)

This tracks with lower favorable attitudes toward the use of PVC pipe in both of these areas (54% and 64% respectively), compared to the South and Southwest Region (80%) and the Mountain and West Coast Region (77%). (Q.3, pg. 24)

Finally, only 69 percent in the New England and Atlantic Region rated the overall performance of PVC pipe as Excellent or Good. Eighty percent did so in the Central Region. This compares to 91 percent and 89 percent in the South and Southwest Region and the Mountain and West Coast Region respectively. (Q.14, pg. 54)

8. Trade editors are generally positive about PVC pipe for water distribution applications.
- Interviews with six trade editors revealed that all were aware of The Vinyl Institute and all recalled receiving information from it. (Q.8, pg. 144; Q.9, pg. 145)
 - Four of the six editors had a high regard for the overall performance of PVC pipe, while two did not feel they could make a judgement. (Q.13, pg. 149)
 - Editors generally concurred with those surveyed from the industry and rated PVC's performance best on Resistance to corrosion, Resistance to electrical, electrostatic and galvanic interaction, Weight and handling ability, and Ease and economy of installation. Strength and Ease of locating PVC pipe after it has been installed in the ground were PVC's lowest rated characteristics. (Q.14, pg. 150)
 - The editors did not express any great amount of concern about the effect of PVC pipe on water quality. None of them said they had a great deal of concern and were less inclined to support the use or specification of PVC pipe for this reason. (Q.15, pg. 151)
 - Five of the six editors felt better informed about the properties of PVC pipe today than three years ago and three cited The Vinyl Institute as the main source of the information that had made them better informed. (Q.6, pg. 142 and Q.7, pg. 143)
 - Three editors found the releases from The Vinyl Institute to be useful. One editor considered them to be only marginally useful because he felt they were "too much like ads." He preferred information that was usage oriented rather than product oriented. Two editors said they couldn't comment on the usefulness of The Institute's releases. (Q.10, pg. 146)

CTL029096