



REDUCTION OF ADDITIONAL ORGANIC CHEMICALS

It has been demonstrated that chloroform reduction is a conservative indicator of filter performance in the reduction of a whole group of organic chemicals. These compounds are listed below as are the most likely sources of these contaminants.

Each of the compounds has been identified by the United States Environmental Protection Agency as a potential drinking water contaminant and as a threat to health.

VOLATILE ORGANIC CHEMICALS

SOURCE

BENZENE	GASOLINE AND OTHER FUELS
BROMOFORM	CHLORINATION OF WATER SUPPLIES
BROMODICHLOROMETHANE	CHLORINATION OF WATER SUPPLIES
CARBON TETRACHLORIDE	CLEANSER AND SOLVENT
CHLOROBENZENE	GASOLINE AND OTHER FUELS
CHLOROFORM	CHLORINATION OF WATER SUPPLIES
DIBROMOCHLOROMETHANE	CHLORINATION OF WATER SUPPLIES
p-DICHLOROBENZENE	SOLVENT IN MANUFACTURE OF PESTICIDES.
o-DICHLOROBENZENE	VARIOUS MANUFACTURING PROCESSES
1,1-DICHLOROETHANE	
t-1,2-DICHLOROETHENE	SOLVENT USED IN CHEMICAL MANUFACTURE
1,1-DICHLOROETHYLENE	
1,1,1-TRICHLOROETHANE	INDUSTRIAL CLEANSERS
1,2-DICHLOROPROPANE	
ETHYLBENZENE	GASOLINE AND OTHER FUELS
HEXACHLOROBUTADIENE	
PENTACHLOROPHENOL	WOOD PRESERVATIVE AND DISINFECTANT
STYRENE	USED IN MANUFACTURE OF PLASTICS
1,1,2,2-TETRACHLOROETHANE	
TETRACHLOROETHYLENE	INDUSTRIAL CLEANSERS
1,2,4-TRICHLOROBENZENE	MANUFACTURE OF DYES AND PESTICIDES
1,1,2-TRICHLOROETHANE	USED IN CHEMICAL MANUFACTURING
TOLUENE	AVIATION AND OTHER FUELS
TRICHLOROFLUOROMETHANE	
o-XYLENE	DEGREASER, COMPONENT OF FUELS.
ALACHLOR	HERB/ WEED CONTROL/BEANS, CORN
ATRAZINE	HERB/ WEED CONTROL/CITRUS, SUGAR CANE
CARBOFURAN	PEST/ CORN, POTATOES, RICE, SUGAR CANE
DIBROMOCHLOROPROPANE (DBCP)	PEST/ SOIL FUMIGANT
DINOSEB	HERB/ FRUIT SPRAY
ETHYLENE DIBROMIDE	PEST/ FUMIGANT FOR FRUITS AND VEGETABLES
ENDRIN	PEST/ HOME GARDEN SPRAY
HEPTACHLOR	PEST/ TERMITES
HEPTACHLOR EPOXIDE	BY PRODUCT OF HEPTACHLOR USAGE
LINDANE	PEST/ HOME GARDEN SPRAY, CORN, BEANS
METHOXYCHLOR	PEST/ HOME GARDEN SPRAY, FRUITS, BERRIES
SIMAZINE	HERB/ GOLF COURSES, ORCHARDS, NURSERY STOCK
2,4-D	HERBICIDE USED TO CONTROL ALGAE
2,4,5-TP (SILVEX)	HERB/ BRUSH AND WEED CONTROL



PERFORMANCE EVALUATION

Date: 1/2/95

Page: 3 of 10

Testing protocol: ANSI/NSF Standard 53.

MDL: Lead 1.0 ppb. Results expressed in parts per billion (ppb).

Flow Interval (Gallons)	Challenge Water	Filtered Water		Removal Rate Percent
		unit A	unit B	
10 Unit Volume Lead	141	ND	1	>99.0
200 Gallons Lead	156	1	1	>99.0
400 Gallons Lead	154	5	5	>96.0
600 Gallons Lead	144	1	ND	>99.0
800 Gallons Lead	164	1	1	>99.0
1,000 Gallons Lead	142	2	4	>97.0
1,200 Gallons Lead	142	2	1	>98.0
1,400 Gallons Lead	143	2	1	>98.0
1,600 Gallons Lead	136	5	5	>96.0
1,800 Gallons Lead	163	1	1	>99.0
2,000 Gallons Lead	156	3	3	>98.0

ND = None detected at or above one part per billion (1 ppb).



PERFORMANCE EVALUATION

Date: 1/2/95

Page: 4 of 10

Testing protocol: ANSI/NSF Standard 53.

Results expressed in parts per billion (ppb).

BACKGROUND PARAMETERS
AT BEGINNING OF TEST

PARAMETER	INFLUENT	COMBINED EFFLUENT
ALKALINITY	180	180
HARDNESS	170	170
TDS	260	260
TOC	NA	NA
pH	8.3	8.3
TURBIDITY (NTU)	ND	0.1
CALCIUM	ND	ND
CHLORIDE	71	72
MAGNESIUM	40	42
NITRATE	ND	ND
POTASSIUM	ND	ND
SODIUM	38	36
SULFATE	ND	ND
CHLORINE (TOTAL)	ND	ND
TEMPERATURE	68 F	68 F
PHOSPHOROUS TOTAL	ND	ND
PHOSPHATE, ORTHO	NA	NA
IRON, TOTAL	0.06	0.06



PERFORMANCE EVALUATION

Date: 1/2/95

Page: 5 of 10

Testing protocol: ANSI/NSF Standard 53.

MDL: Lead 1.0 ppb. Results expressed in parts per billion (ppb).

Flow Interval (Gallons)	Challenge Water	Filtered Water unit C	unit D	Removal Rate Percent
10 Unit Volume Lead	162	2	1	>99.0
200 Gallons Lead	152	2	1	>99.0
400 Gallons Lead	158	1	1	>99.0
600 Gallons Lead	154	5	4	>96.0
800 Gallons Lead	156	2	1	>99.0
1,000 Gallons Lead	161	5	8	>95.0
1,200 Gallons Lead	140	8	5	>95.0
1,400 Gallons Lead	148	6	5	>96.0
1,600 Gallons Lead	141	12	5	>93.0
1,800 Gallons Lead	153	12	7	>93.0
2,000 Gallons Lead	158	2	1	>99.0

ND = None detected at or above one part per billion (1 ppb).



PERFORMANCE EVALUATION

Date: 1/2/95

Page: 6 of 10

Testing protocol: ANSI/NSF Standard 53.

Results expressed in parts per billion (ppb).

BACKGROUND PARAMETERS
AT BEGINNING OF TEST

PARAMETER	INFLUENT	COMBINED EFFLUENT
ALKALINITY	18	18
HARDNESS	28	28
TDS	50	60
TOC	NA	NA
pH	6.3	6.3
TURBIDITY (NTU)	0.2	0.9
CALCIUM	ND	ND
CHLORIDE	28.7	28.2
MAGNESIUM	7.7	4.9
NITRATE	0.2	ND
POTASSIUM	ND	16.7
SODIUM	8.6	13.8
SULFATE	ND	ND
CHLORINE (TOTAL)	ND	ND
TEMPERATURE	68 F	68 F
PHOSPHOROUS TOTAL	ND	1.2
PHOSPHATE, ORTHO	NA	NA
IRON, TOTAL	ND	ND



PERFORMANCE EVALUATION

Date: 1/2/95

Page: 7 of 10

Testing protocol: ANSI/NSF Standard 53.

MDL: Chloroform 0.5 ppb. Results expressed in parts per billion.

Flow Interval (Gallons)	Challenge Water	Filtered Water unit C	unit D	Removal Rate Percent
10 Unit Volume Chloroform	284	ND	ND	>99.0
200 Gallons Chloroform	302	ND	ND	>99.0
400 Gallons Chloroform	262	ND	ND	>99.0
500 Gallons Chloroform	265	ND	ND	>99.0
600 Gallons Chloroform	283	ND	ND	>99.0
800 Gallons Chloroform	312	ND	ND	>99.0
1,000 Gallons Chloroform	260	ND	ND	>99.0
1,100 Gallons Chloroform	291	1	1	>99.0
1,200 Gallons Chloroform	308	2	2	>99.0
1,300 Gallons Chloroform	310	5	5	>98.0
1,400 Gallons Chloroform	300	14	14	>95.0
1,500 Gallons Chloroform	281	28	30	>89.0

ND = None detected at or above one part per billion (1 ppb).



PERFORMANCE EVALUATION

Date: 1/2/95

Page: 8 of 10

Testing protocol: ANSI/NSF Standard 53.

Results expressed in parts per billion (ppb).

BACKGROUND PARAMETERS
AT BEGINNING OF TEST

PARAMETER	INFLUENT	COMBINED EFFLUENT
ALKALINITY	34	34
HARDNESS	28	28
TDS	380	380
TOC	NA	NA
pH	7.2	7.2
TURBIDITY (NTU)	0.2	0.9
CALCIUM	ND	ND
CHLORIDE	265	254
MAGNESIUM	2	3
NITRATE	ND	ND
POTASSIUM	ND	8
SODIUM	120	121
SULFATE	ND	ND
CHLORINE (TOTAL)	ND	ND
TEMPERATURE	68 F	69 F
PHOSPHOROUS TOTAL	ND	0.6
PHOSPHATE, ORTHO	ND	ND
IRON, TOTAL	ND	ND



NATIONAL TESTING LABORATORIES, INC. CREDENTIALS.

National Testing Laboratories, Inc. is the largest independent laboratory in the United States specializing in the analysis of drinking water for chemical contamination. The laboratory provides these services to more than 1,500 clients every month including public water systems, beverage companies, industrial concerns, businesses and home-owners across the United States and Canada.

The laboratory is also one of the few laboratories which provide the performance validation testing of drinking water filters required by certain states. As of 1/1/95 those states and their regulatory agencies are which accept our data are:

- California: Office of Drinking Water.
- Iowa: Department of Public Health.
- Wisconsin: Dept. of Industry, Labor, and Human Relations.
- Massachusetts: Massachusetts Plumbing Board.

We are also accredited by the National Sanitation Foundation International (NSF) to provide chemical and micro-biological analysis of drinking water and bottled water.

The states in which National Testing Laboratories, Inc. is currently certified to perform regulatory compliance testing for public water systems are:

Michigan, Florida, Maryland, New York, Virginia, New Jersey, Pennsylvania, California, South Carolina, Georgia, Idaho, Alaska, Wisconsin, Tennessee, North Carolina, New Hampshire, West Virginia, Louisiana, Alabama, Kentucky.

These lists are current as of January 1, 1995. We are constantly working with new states and other agencies to gain their certifications and approvals for our laboratories.

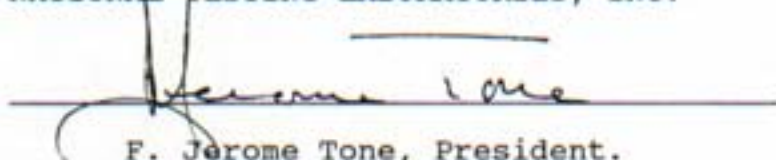
Call 1-800-458-3330 for a current listing of these approvals.

OUR TEST APPARATUS.

The test stand consists of a test water source followed by a pressure regulator followed by a challenge water concentrate tank, a proportional feeding device, a 120 gallon glass lined mixing tank and thence to the filters themselves. Flow monitoring devices and mechanical filters allow us to record flows and insure particulate reduction of the challenge water to < 1 micron. Each test stand has the capacity to flow at least twelve gallons per minute.

This ten page report is respectfully submitted by,

NATIONAL TESTING LABORATORIES, INC.


 F. Jerome Tone, President.