



**NSF International**

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# TEST REPORT

**Send To: C0506208**

Mr. Jorn Lohmann  
Hytecon AG  
Brunnhalde 10  
6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

Report Date 11-DEC-2020

Customer Name	Hytecon AG
Tested To	Std 401 Group III Reduction - POU/POE - 120%(Phenytoin)
Description	HYPRO WATER
Test Type	Qualification
Report Issue #	6 of 6
Job Number	J-00367665
Project Number	W0628632
Project Manager	Kari Grounds

**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 11-DEC-2020

**Std 401 Group III Reduction - POU/POE - 120%(Phenytoin): PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367665

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 29-OCT-2020

**Date Test Completed:** 10-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 401-2019: Drinking Water Treatment Units - Emerging Compounds / Incidental Contaminants

**Test Description:** Std.401 Group 3 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 401

**Phenytoin P/F:** PASS

**Pass/Fail Criteria (Phenytoin):** 30 ng/L

**Overall Percent Reduction:** >95.8 %

**Maximum Effluent:** <10 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results

**Data Summary Table(Phenytoin)**

Sample Point	Accumulated Volume (gal)		Phenytoin (ng/L)			Dynamic Pressure (psi)
	Effluent 1	Effluent 2	Influent	Effluent 1	Effluent 2	Influent
Startup	8	8	250	ND(10)	ND(10)	60
25%	132	135	240	ND(10)	ND(10)	61
50%	264	264	220	ND(10)	ND(10)	60
75%	397	397	250	ND(10)	ND(10)	61
100%	529	528	240	ND(10)	ND(10)	60
120%	634	634	230	ND(10)	ND(10)	60

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.76	0.76
25%	0.76	0.76
50%	0.76	0.76
75%	0.73	0.76
100%	0.75	0.75
120%	0.71	0.76

**Phenytoin Detection Limit:** 10 ng/L

**Data Analysis Table(Phenytoin)**

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
Startup	250	ND(10)	ND(10)	96.0	96.0	96.0
25%	240	ND(10)	ND(10)	95.9	95.9	95.9
50%	240	ND(10)	ND(10)	95.8	95.8	95.8
75%	240	ND(10)	ND(10)	95.8	95.8	95.8
100%	240	ND(10)	ND(10)	95.8	95.8	95.8
120%	240	ND(10)	ND(10)	95.8	95.8	95.8

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
Startup	96.0	ND(10)	7	4	YES
25%	95.9	ND(10)	110	66	YES
50%	95.8	ND(10)	220	132	YES
75%	95.8	ND(10)	331	198	YES
100%	95.8	ND(10)	440	264	YES
120%	95.8	ND(10)	528	317	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics(Phenytoin)

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	280	280	280
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.9	1.9	1.9
Turbidity	NTU	0.1	0.1	0.1
pH		7.67		7.67

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

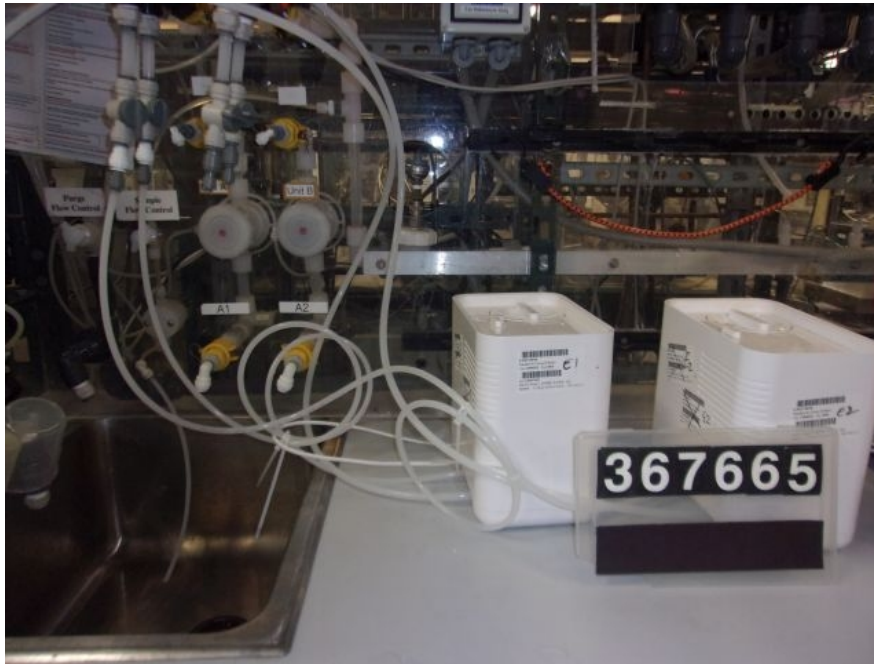
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



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Mr. Jorn Lohmann  
Hytecon AG  
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6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 11-DEC-2020

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Customer Name	Hytecon AG
Tested To	Std 401 Group III Reduction - POU/POE - 120%(Ibuprofen)
Description	HYPRO WATER
Test Type	Qualification
Report Issue #	3 of 6
Job Number	J-00367665
Project Number	W0628632
Project Manager	Kari Grounds

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**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 11-DEC-2020



**Std 401 Group III Reduction - POU/POE - 120%(Ibuprofen): PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367665

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 29-OCT-2020

**Date Test Completed:** 10-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 401-2019: Drinking Water Treatment Units - Emerging Compounds / Incidental Contaminants

**Test Description:** Std.401 Group 3 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 401

**Ibuprofen P/F:** PASS

**Pass/Fail Criteria (Ibuprofen):** 60 ng/L

**Overall Percent Reduction:** 95.2 %

**Maximum Effluent:** 26 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results

**Data Summary Table(Ibuprofen)**

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Ibuprofen (ng/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	8	8	60	400	ND(20)	ND(20)
25%	132	135	61	440	ND(20)	ND(20)
50%	264	264	60	440	ND(20)	ND(20)
75%	397	397	61	440	ND(20)	ND(20)
100%	529	528	60	450	22	ND(20)
120%	634	634	60	460	26	22

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.76	0.76
25%	0.76	0.76
50%	0.76	0.76
75%	0.73	0.76
100%	0.75	0.75
120%	0.71	0.76

**Ibuprofen Detection Limit:** 20 ng/L

## Data Analysis Table(Ibuprofen)

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
Startup	400	ND(20)	ND(20)	95.0	95.0	95.0
25%	420	ND(20)	ND(20)	95.2	95.2	95.2
50%	430	ND(20)	ND(20)	95.3	95.3	95.3
75%	430	ND(20)	ND(20)	95.3	95.3	95.3
100%	430	20	ND(20)	95.2	94.9	95.4
120%	440	21	20	94.5	94.1	95.0

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
Startup	95.0	ND(20)	7	4	YES
25%	95.2	ND(20)	110	66	YES
50%	95.3	ND(20)	220	132	YES
75%	95.3	ND(20)	331	198	YES
100%	95.3	22	440	264	YES
120%	95.2	26	528	317	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics(Ibuprofen)

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	280	280	280
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.9	1.9	1.9
Turbidity	NTU	0.1	0.1	0.1
pH		7.67		7.67

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### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

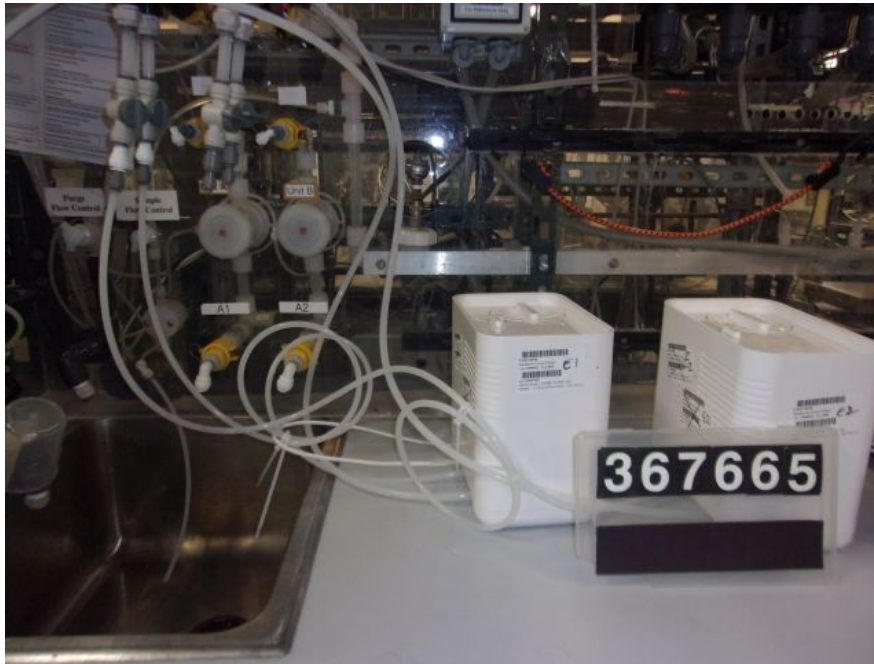
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



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**Facility: C0506210**

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32051 Herford  
Germany

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Report Date 11-DEC-2020

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Customer Name	Hytecon AG
Tested To	Std 401 Group III Reduction - POU/POE - 120%(Naproxen)
Description	HYPRO WATER
Test Type	Qualification
Report Issue #	4 of 6
Job Number	J-00367665
Project Number	W0628632
Project Manager	Kari Grounds

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**Thank you for having your product tested by NSF International.**

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**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 11-DEC-2020

**Std 401 Group III Reduction - POU/POE - 120%(Naproxen): PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367665

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 29-OCT-2020

**Date Test Completed:** 10-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 401-2019: Drinking Water Treatment Units - Emerging Compounds / Incidental Contaminants

**Test Description:** Std.401 Group 3 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 401

**Naproxen P/F:** PASS

**Pass/Fail Criteria (Naproxen):** 20 ng/L

**Overall Percent Reduction:** >96.9 %

**Maximum Effluent:** <5 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results



### Data Summary Table(Naproxen)

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Naproxen (ng/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	8	8	60	140	ND(5)	ND(5)
25%	132	135	61	160	ND(5)	ND(5)
50%	264	264	60	160	ND(5)	ND(5)
75%	397	397	61	170	ND(5)	ND(5)
100%	529	528	60	170	ND(5)	ND(5)
120%	634	634	60	160	ND(5)	ND(5)

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.76	0.76
25%	0.76	0.76
50%	0.76	0.76
75%	0.73	0.76
100%	0.75	0.75
120%	0.71	0.76

**Naproxen Detection Limit: 5 ng/L**

## Data Analysis Table(Naproxen)

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
Startup	140	ND(5)	ND(5)	96.4	96.4	96.4
25%	150	ND(5)	ND(5)	96.7	96.7	96.7
50%	150	ND(5)	ND(5)	96.7	96.7	96.7
75%	160	ND(5)	ND(5)	96.8	96.8	96.8
100%	160	ND(5)	ND(5)	96.9	96.9	96.9
120%	160	ND(5)	ND(5)	96.9	96.9	96.9

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
Startup	96.4	ND(5)	7	4	YES
25%	96.7	ND(5)	110	66	YES
50%	96.7	ND(5)	220	132	YES
75%	96.8	ND(5)	331	198	YES
100%	96.9	ND(5)	440	264	YES
120%	96.9	ND(5)	528	317	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics(Naproxen)

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	280	280	280
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.9	1.9	1.9
Turbidity	NTU	0.1	0.1	0.1
pH		7.67		7.67

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

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### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

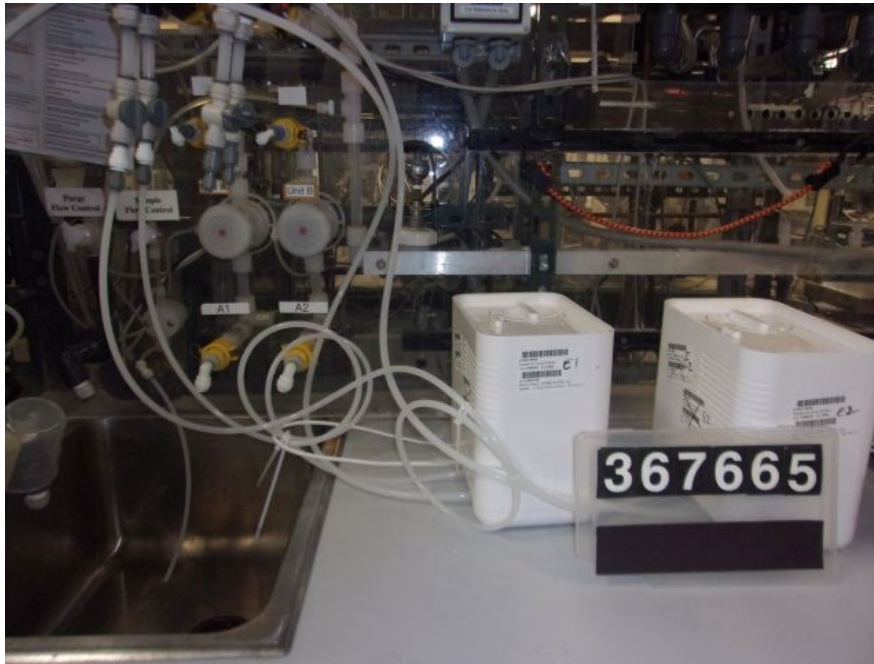
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



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Report Date 11-DEC-2020

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Customer Name Hytecon AG  
Tested To Std 401 Group III Reduction - POU/POE - 120%(Estrone)  
Description HYPRO WATER  
Test Type Qualification  
Report Issue # 2 of 6  
Job Number J-00367665  
Project Number W0628632  
Project Manager Kari Grounds

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**Thank you for having your product tested by NSF International.**

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**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 11-DEC-2020

**Std 401 Group III Reduction - POU/POE - 120%(Estrone): PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367665

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 29-OCT-2020

**Date Test Completed:** 10-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 401-2019: Drinking Water Treatment Units - Emerging Compounds / Incidental Contaminants

**Test Description:** Std.401 Group 3 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 401

**Estrone P/F:** PASS

**Pass/Fail Criteria (Estrone):** 20 ng/L

**Overall Percent Reduction:** >96.7 %

**Maximum Effluent:** <5 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results

**Data Summary Table(Estrone)**

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Estrone (ng/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	8	8	60	160	ND(5)	ND(5)
25%	132	135	61	140	ND(5)	ND(5)
50%	264	264	60	140	ND(5)	ND(5)
75%	397	397	61	170	ND(5)	ND(5)
100%	529	528	60	160	ND(5)	ND(5)
120%	634	634	60	130	ND(5)	ND(5)

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.76	0.76
25%	0.76	0.76
50%	0.76	0.76
75%	0.73	0.76
100%	0.75	0.75
120%	0.71	0.76

**Estrone Detection Limit: 5 ng/L**



**Data Analysis Table(Estrone)**

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
Startup	160	ND(5)	ND(5)	96.9	96.9	96.9
25%	150	ND(5)	ND(5)	96.7	96.7	96.7
50%	150	ND(5)	ND(5)	96.6	96.6	96.6
75%	150	ND(5)	ND(5)	96.7	96.7	96.7
100%	150	ND(5)	ND(5)	96.8	96.8	96.8
120%	150	ND(5)	ND(5)	96.7	96.7	96.7

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
Startup	96.9	ND(5)	7	4	YES
25%	96.7	ND(5)	110	66	YES
50%	96.6	ND(5)	220	132	YES
75%	96.7	ND(5)	331	198	YES
100%	96.8	ND(5)	440	264	YES
120%	96.7	ND(5)	528	317	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics(Estrone)

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	280	280	280
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.9	1.9	1.9
Turbidity	NTU	0.1	0.1	0.1
pH		7.67		7.67

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

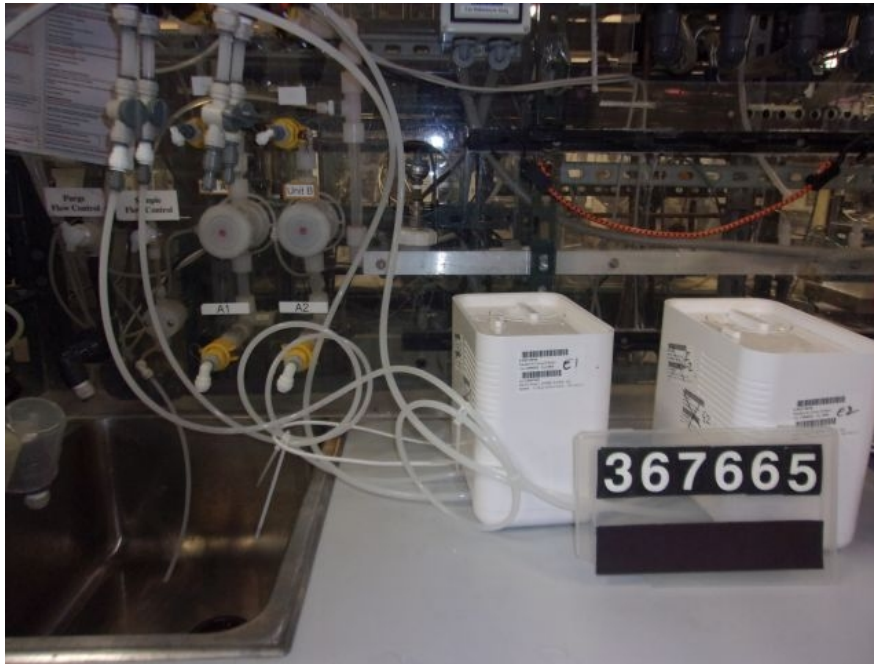
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



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# TEST REPORT

**Send To: C0506208**

Mr. Jorn Lohmann  
Hytecon AG  
Brunnhalde 10  
6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 11-DEC-2020

---

Customer Name	Hytecon AG
Tested To	Std 401 Group III Reduction - POU/POE - 120%(Bisphenol A)
Description	HYPRO WATER
Test Type	Qualification
Report Issue #	1 of 6
Job Number	J-00367665
Project Number	W0628632
Project Manager	Kari Grounds

---

**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 11-DEC-2020

**Std 401 Group III Reduction - POU/POE - 120%(Bisphenol A): PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367665

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 29-OCT-2020

**Date Test Completed:** 10-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 401-2019: Drinking Water Treatment Units - Emerging Compounds / Incidental Contaminants

**Test Description:** Std.401 Group 3 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 401

**Bisphenol A P/F:** PASS

**Pass/Fail Criteria (Bisphenol A):** 300 ng/L

**Overall Percent Reduction:** >99.0 %

**Maximum Effluent:** <20 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results

**Data Summary Table(Bisphenol A)**

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Bisphenol A (ng/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	8	8	60	2200	ND(20)	ND(20)
25%	132	135	61	2100	ND(20)	ND(20)
50%	264	264	60	1900	ND(20)	ND(20)
75%	397	397	61	2100	ND(20)	ND(20)
100%	529	528	60	2100	ND(20)	ND(20)
120%	634	634	60	2100	ND(20)	ND(20)

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.76	0.76
25%	0.76	0.76
50%	0.76	0.76
75%	0.73	0.76
100%	0.75	0.75
120%	0.71	0.76

**Bisphenol A Detection Limit:** 20 ng/L

## Data Analysis Table(Bisphenol A)

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
Startup	2200	ND(20)	ND(20)	99.1	99.1	99.1
25%	2200	ND(20)	ND(20)	99.1	99.1	99.1
50%	2100	ND(20)	ND(20)	99.0	99.0	99.0
75%	2100	ND(20)	ND(20)	99.0	99.0	99.0
100%	2100	ND(20)	ND(20)	99.0	99.0	99.0
120%	2100	ND(20)	ND(20)	99.0	99.0	99.0

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
Startup	99.1	ND(20)	7	4	YES
25%	99.1	ND(20)	110	66	YES
50%	99.0	ND(20)	220	132	YES
75%	99.0	ND(20)	331	198	YES
100%	99.0	ND(20)	440	264	YES
120%	99.0	ND(20)	528	317	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device



## Water Characteristics(Bisphenol A)

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	280	280	280
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.9	1.9	1.9
Turbidity	NTU	0.1	0.1	0.1
pH		7.67		7.67

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

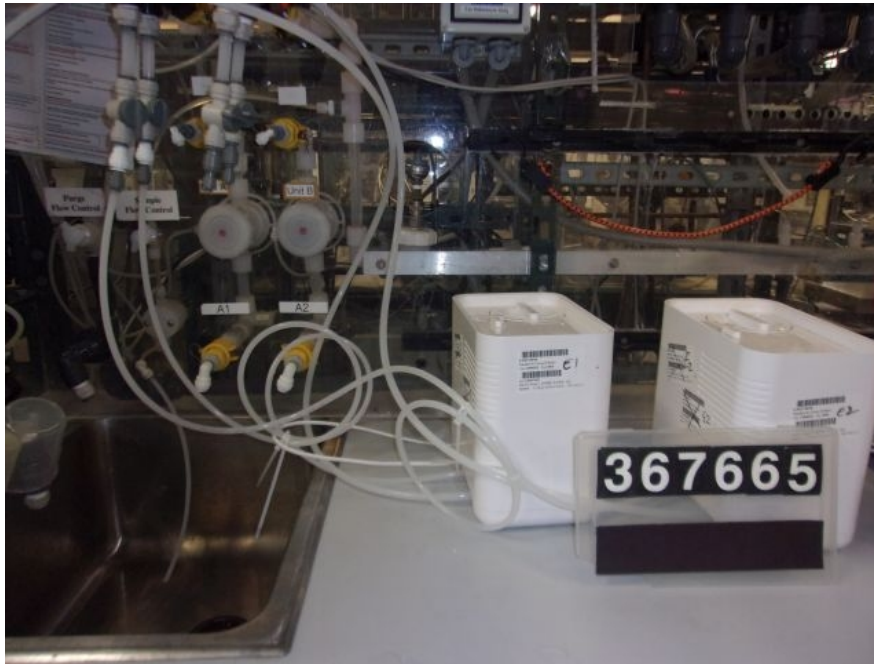
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



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# TEST REPORT

**Send To: C0506208**

Mr. Jorn Lohmann  
Hytecon AG  
Brunnhalde 10  
6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

Report Date 11-DEC-2020

Customer Name	Hytecon AG
Tested To	Std 401 Group III Reduction - POU/POE - 120%(Nonyl phenol)
Description	HYPRO WATER
Test Type	Qualification
Report Issue #	5 of 6
Job Number	J-00367665
Project Number	W0628632
Project Manager	Kari Grounds

**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 11-DEC-2020

**Std 401 Group III Reduction - POU/POE - 120%(Nonyl phenol): PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367665

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 29-OCT-2020

**Date Test Completed:** 10-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 401-2019: Drinking Water Treatment Units - Emerging Compounds / Incidental Contaminants

**Test Description:** Std.401 Group 3 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 401

**Nonyl phenol P/F:** PASS

**Pass/Fail Criteria (Nonyl phenol):** 200 ng/L

**Overall Percent Reduction:** >96.2 %

**Maximum Effluent:** <50 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results

**Data Summary Table(Nonyl phenol)**

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Nonyl phenol (ng/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	8	8	60	1300	ND(50)	ND(50)
25%	132	135	61	1300	ND(50)	ND(50)
50%	264	264	60	1300	ND(50)	ND(50)
75%	397	397	61	1400	ND(50)	ND(50)
100%	529	528	60	1300	ND(50)	ND(50)
120%	634	634	60	1300	ND(50)	ND(50)

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.76	0.76
25%	0.76	0.76
50%	0.76	0.76
75%	0.73	0.76
100%	0.75	0.75
120%	0.71	0.76

**Nonyl phenol Detection Limit:** 50 ng/L

**Data Analysis Table(Nonyl phenol)**

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
Startup	1300	ND(50)	ND(50)	96.2	96.2	96.2
25%	1300	ND(50)	ND(50)	96.2	96.2	96.2
50%	1300	ND(50)	ND(50)	96.2	96.2	96.2
75%	1300	ND(50)	ND(50)	96.2	96.2	96.2
100%	1300	ND(50)	ND(50)	96.2	96.2	96.2
120%	1300	ND(50)	ND(50)	96.2	96.2	96.2

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
Startup	96.2	ND(50)	7	4	YES
25%	96.2	ND(50)	110	66	YES
50%	96.2	ND(50)	220	132	YES
75%	96.2	ND(50)	331	198	YES
100%	96.2	ND(50)	440	264	YES
120%	96.2	ND(50)	528	317	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics(Nonyl phenol)

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	280	280	280
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.9	1.9	1.9
Turbidity	NTU	0.1	0.1	0.1
pH		7.67		7.67

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

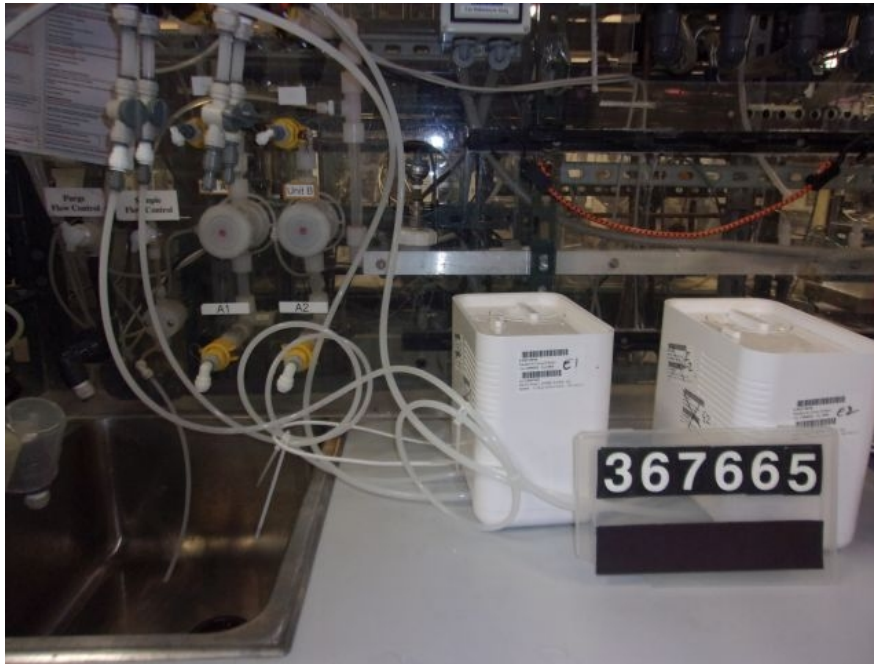
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



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# TEST REPORT

**Send To: C0506208**

Mr. Jorn Lohmann  
Hytecon AG  
Brunnhalde 10  
6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 16-NOV-2020

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Customer Name	Hytecon AG
Tested To	PFOA and PFOS Reduction POU/POE 120%
Description	HYPRO WATER
Test Type	Qualification
Job Number	J-00367664
Project Number	W0628632
Project Manager	Kari Grounds

---

**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 16-NOV-2020

**PFOA and PFOS Reduction POU/POE 120%: FAIL**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367664

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 08-OCT-2020

**Date Test Completed:** 05-NOV-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 180 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 53-2019: Drinking Water Treatment Units - Health Effects

**Test Description:** Std.53 PFOS/PFOA - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 053

**Total PFOA and PFOS P/F:** FAIL

**Pass/Fail Criteria (Total PFOA and PFOS):** 70 ng/L

**Overall Percent Reduction:** 90.5 %

**Maximum Effluent:** 410 ng/L

**All effluent values are less than or equal to the pass/fail criteria:** NO

§ Data provided by customer and can affect the validity of the results

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**Job Note:** Due to a mechanical problem with unit 2 the capacity for the last sample point for Effluent 2 was exceeded. The job failed prior to the last sample point.

## Data Summary Table

Sample Point	Accumulated Volume (gal)		Flow Rate (gpm)	
	Effluent 1	Effluent 2	Effluent 1	Effluent 2
Startup	4	4	0.73	0.75
25%	135	136	0.75	0.73
50%	265	264	0.71	0.70
75%	396	396	0.71	0.67
100%	529	528	0.70	0.67
120%	645	813	0.71	0.60

Sample Point	Total PFOA and PFOS (ng/L)			Dynamic Pressure (psi)
	Influent	Effluent 1	Effluent 2	Influent
Startup	1100	ND(70)	ND(70)	59
25%	1300	ND(70)	ND(70)	59
50%	1400	ND(70)	90	59
75%	1300	ND(70)	140	60
100%	1400	120	250	60
120%	1600	110	410	61

**Total PFOA and PFOS Detection Limit: 70 ng/L**

## Data Analysis Table

Sample Point	Inf. Average (ng/L)	Average (ng/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
25%	1200	ND(70)	ND(70)	94.2	94.2	94.2
50%	1300	ND(70)	77	93.7	94.5	92.9
75%	1300	ND(70)	92	91.8	94.5	89.0
100%	1300	80	120	85.8	90.8	80.8
120%	1400	85	170	80.7	91.9	69.6

Sample Point	Ave. % Reduction (%)	Maximum (ng/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
25%	94.2	ND(70)	112	68	YES
50%	94.2	90	220	132	NO
75%	93.6	140	330	198	NO
100%	92.2	250	440	264	NO
120%	90.5	410	538	322	NO

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics

Characteristic	Units	Range		
		Minimum	Average	Maximum
Chlorine, Free Available	mg/L	ND(0.05)	ND(0.05)	ND(0.05)
Solids, Total Dissolved	mg/L	250	250	250
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.7	1.7	1.7
Turbidity	NTU	ND(0.1)	ND(0.1)	ND(0.1)
pH		7.90	7.90	7.90

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$





Test Configuration



**NSF International**

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# TEST REPORT

**Send To: C0506208**

Mr. Jorn Lohmann  
Hytecon AG  
Brunnhalde 10  
6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 30-OCT-2020

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Customer Name	Hytecon AG
Tested To	Standard 42 Chlorine Reduction, Free Available POU
Description	HYPRO WATER
Test Type	Qualification
Job Number	J-00367663
Project Number	W0628632
Project Manager	Kari Grounds

---

**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 30-OCT-2020

**Standard 42 Chlorine Reduction, Free Available POU: PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00367663

**Date of Job Creation:** 17-SEP-2020

**Date Sample Received:** 17-SEP-2020

**Date Job Placed on Hold:** 18-SEP-2020

**Date Job Released from Hold:** 20-OCT-2020

**Date Test Completed:** 29-OCT-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Filter Capacity:** 2000 Liters

§ **Flushing Time:** 60 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 100%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 42-2019: Drinking Water Treatment Units - Aesthetic Effects

**Test Description:** Std.42 Chlorine - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 042

**Chlorine, Free Available P/F:** PASS

**Pass/Fail Criteria (Chlorine, Free Available %A):** 50 %

**Overall Percent Reduction:** 97.4 %

§ Data provided by customer and can affect the validity of the results

## Data Summary Table

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Chlorine, Free Available (mg/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	6	6	62	2.0	ND(0.05)	ND(0.05)
10%	53	53	62	1.9	ND(0.05)	ND(0.05)
20%	106	106	62	2.0	ND(0.05)	ND(0.05)
30%	159	159	62	2.0	ND(0.05)	ND(0.05)
40%	212	212	62	1.9	ND(0.05)	ND(0.05)
50%	264	268	62	2.1	ND(0.05)	ND(0.05)
60%	317	317	62	2.0	ND(0.05)	ND(0.05)
70%	370	370	62	2.0	ND(0.05)	ND(0.05)
80%	423	423	62	1.8	ND(0.05)	ND(0.05)
90%	480	480	62	1.9	ND(0.05)	ND(0.05)
100%	528	529	62	1.9	0.07	ND(0.05)

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	0.79	0.81
10%	0.77	0.79
20%	0.78	0.80
30%	0.77	0.80
40%	0.78	0.80
50%	0.78	0.82
60%	0.77	0.80
70%	0.78	0.81
80%	0.79	0.81
90%	0.77	0.79
100%	0.78	0.80

**Chlorine, Free Available Detection Limit:** 0.05 mg/L

## Data Analysis Table

Sample Point	Inf. Average (mg/L)	Average (mg/L)		Eff. % Reduction (Ave. Inf.) (%)		Ave. % Reduction (%)
		Effluent 1	Effluent 2	Effluent 1	Effluent 2	
30%	2.0	ND(0.05)	ND(0.05)	97.5	97.5	97.5
40%	2.0	ND(0.05)	ND(0.05)	97.4	97.4	97.4
50%	2.0	ND(0.05)	ND(0.05)	97.5	97.5	97.5
60%	2.0	ND(0.05)	ND(0.05)	97.5	97.5	97.5
70%	2.0	ND(0.05)	ND(0.05)	97.5	97.5	97.5
80%	2.0	ND(0.05)	ND(0.05)	97.5	97.5	97.5
90%	2.0	ND(0.05)	ND(0.05)	97.4	97.4	97.4
100%	2.0	0.05	ND(0.05)	96.4	97.4	97.4

Sample Point	Maximum (mg/L)		Met Minimum Criteria
	Effluent 1	Effluent 2	
30%	ND(0.05)	ND(0.05)	YES
40%	ND(0.05)	ND(0.05)	YES
50%	ND(0.05)	ND(0.05)	YES
60%	ND(0.05)	ND(0.05)	YES
70%	ND(0.05)	ND(0.05)	YES
80%	ND(0.05)	ND(0.05)	YES
90%	ND(0.05)	ND(0.05)	YES
100%	0.07	ND(0.05)	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** Ninety percent of prior effluent percent reduction sample points and this sample point are greater than or equal to the pass/fail criteria.

## Water Characteristics

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	270	270	270
Temperature	degrees C	21	21	21
Total Organic Carbon	mg/L	1.6	1.6	1.6
Turbidity	NTU	ND(0.1)	ND(0.1)	ND(0.1)
pH		7.79		7.79

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

### Influent Average Percent Reduction Calculations

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.

Effluent includes the effluent value for the specific sample point.

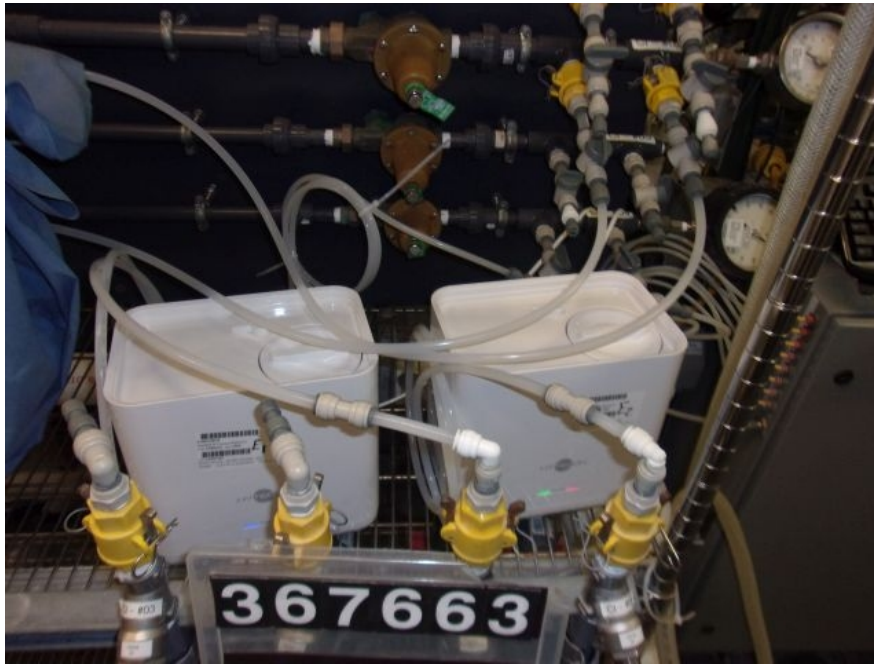
$$\text{Average } \% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## Average Percent Reduction Calculations

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



**NSF International**

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# TEST REPORT

**Send To: C0506208**

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Hytecon AG  
Brunnhalde 10  
6006 Luzern  
Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 31-JAN-2020

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Customer Name	Hytecon AG
Tested To	Standard 53 Atrazine Reduction POU/POE 120%
Description	HYPRO WATER
Test Type	Qualification
Job Number	J-00342358
Project Number	W0576288
Project Manager	Kari Grounds

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**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 31-JAN-2020



**Standard 53 Atrazine Reduction POU/POE 120%: PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00342358

**Date of Job Creation:** 06-JAN-2020

**Date Sample Received:** 06-JAN-2020

**Date Job Placed on Hold:** 08-JAN-2020

**Date Job Released from Hold:** 13-JAN-2020

**Date Test Completed:** 30-JAN-2020

**Sample Type:** Qualification

§ **Control Flow:** No

**DCC Number:** PW09231

§ **Filter Capacity:** 5000 Liters

§ **Flushing Time:** 60 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Point of Use Plumbed In

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 53-2019: Drinking Water Treatment Units - Health Effects

**Test Description:** Std.53 Atrazine - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 053

**Atrazine P/F:** PASS

**Pass/Fail Criteria (Atrazine):** 3 ug/L

**Overall Percent Reduction:** 94.1 %

**Maximum Effluent:** 0.6 ug/L

**All effluent values are less than or equal to the pass/fail criteria:** YES

§ Data provided by customer and can affect the validity of the results

## Data Summary Table

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Atrazine (ug/L)		
	Effluent 1	Effluent 2	Influent	Influent	Effluent 1	Effluent 2
Startup	7	7	58	9.2	ND(0.5)	ND(0.5)
25%	338	334	59	8.2	ND(0.5)	ND(0.5)
50%	665	665	60	9.0	ND(0.5)	ND(0.5)
75%	996	998	60	9.2	0.6	ND(0.5)
100%	1320	1330	59	8.7	0.6	ND(0.5)
120%	1590	1590	58	9.5	0.6	ND(0.5)

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
Startup	1.4	1.4
25%	1.5	1.4
50%	1.5	1.5
75%	1.5	1.4
100%	1.5	1.4
120%	1.4	1.4

**Atrazine Detection Limit:** 0.5 ug/L

## Data Analysis Table

Sample Point	Inf. Average (ug/L)	Average (ug/L)		Eff. % Reduction (Ave. Inf.) (%)		
		Effluent 1	Effluent 2	All Effluent	Effluent 1	Effluent 2
75%	8.9	0.5	ND(0.5)	93.8	93.3	94.4
100%	8.9	0.5	ND(0.5)	93.8	93.2	94.4
120%	9.0	0.6	ND(0.5)	93.9	93.3	94.4

Sample Point	Ave. % Reduction (%)	Maximum (ug/L)	Validated Capacity with PID	Validated Capacity without PID	Met Minimum Criteria
75%	94.2	0.6	830	498	YES
100%	94.1	0.6	1100	660	YES
120%	94.1	0.6	1320	795	YES

**Inf. Average:** Influent Average

**Average:** All Effluent Average

**Eff. % Reduction (Ave. Inf.):** Effluent percent reduction calculated from average of previous influent values.

**Ave. % Reduction:** Percent reduction calculated from all prior influents and effluents.

**Maximum:** Maximum Effluent

**Met Minimum Criteria:** All effluent values are less than or equal to the pass/fail criteria

**Validated Capacity with PID:** Validated Capacity with Performance Indication Device

**Validated Capacity without PID:** Validated Capacity without Performance Indication Device

## Water Characteristics

Characteristic	Units	Range		
		Minimum	Average	Maximum
Solids, Total Dissolved	mg/L	250	250	250
Temperature	degrees C	18	18	18
Total Organic Carbon	mg/L	1.8	1.8	1.8
Turbidity	NTU	0.1	0.1	0.1
pH		7.46		7.46

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

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### Calculation Definitions

All calculations use values as presented in the Data Summary Table and rounding is performed only at the conclusion of the calculation.

### Percent Reduction Calculations

Overall Percent Reduction:

Influent Average includes all influents.

Effluent Average includes all effluents.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

## **Influent Average Percent Reduction Calculations**

Influent Average Percent Reduction for Current Influent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents for the current sample point.

$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$

Influent Average Percent Reduction for Current Effluent Point:

Influent Average includes all influents up to and including the current sample point.  
Effluent includes the effluent value for the specific sample point.

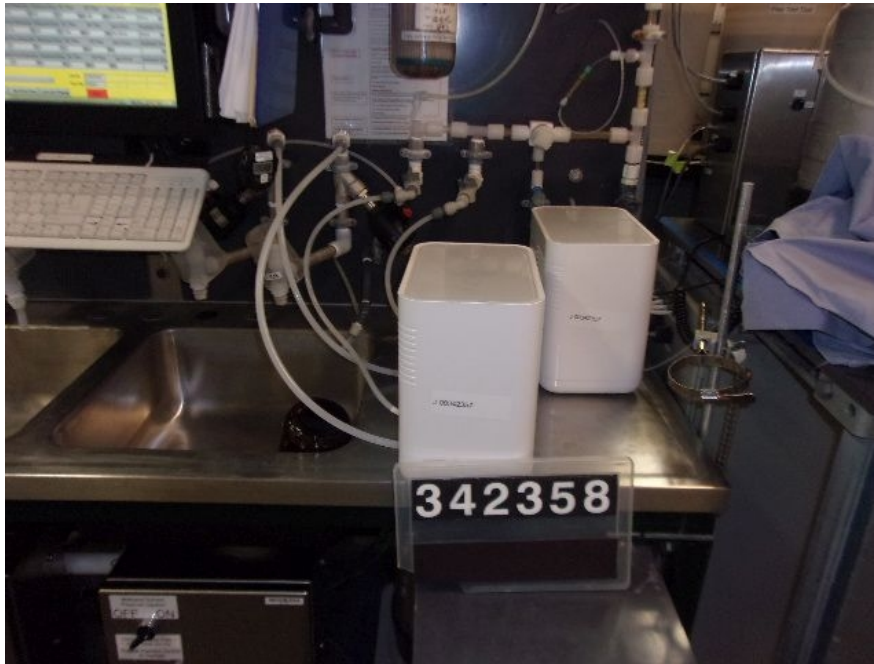
$$\text{Average \% Reduction} = \frac{\text{Influent Average} - \text{Effluent}}{\text{Influent Average}} * 100$$

## **Average Percent Reduction Calculations**

Average Percent Reduction:

Influent Average includes all influents up to and including the current sample point.  
Effluent Average includes all effluents up to and including the current sample point.

$$\% \text{ Reduction} = \frac{\text{Influent Average} - \text{Effluent Average}}{\text{Influent Average}} * 100$$



Test Configuration



**Send To: C0506208**

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Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 23-JAN-2020

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Customer Name	Hytecon AG
Tested To	Standard 53 Lead Reduction pH 8.5 POU/POE 120%
Description	HYPRO WATER
Test Type	Qualification
Job Number	J-00342353
Project Number	W0576288
Project Manager	Kari Grounds

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**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

Semak, David - Director, Engineering Laboratory

**Date** 23-JAN-2020

**Standard 53 Lead Reduction pH 8.5 POU/POE 120%**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00342353

**Date of Job Creation:** 23-DEC-2019

**Date Sample Received:** 23-DEC-2019

**Date Job Placed on Hold:** 27-DEC-2019

**Date Job Released from Hold:** 13-JAN-2020

**Date Test Completed:** 22-JAN-2020

**Sample Type:** QQ

§ **Control Flow:** No

**DCC Number:** PW09231

§ **Filter Capacity:** 5000 Liters

§ **Flushing Time:** 60 seconds

§ **Maximum Rated Op. Pressure:** 58 psi

§ **On Cycle:** 50/50

§ **Percent Capacity:** 120%

§ **Physical Description of Sample:** Point of Use Plumbed In

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 53-2018: Drinking Water Treatment Units - Health Effects

**Test Description:** Std.53 Lead pH 8.5 - HYPRO WATER - QQ

§ **Trade Designation/Model Number:** HYPRO WATER

**Performance Standard:** 053

**Lead P/F:** FAIL

**Pass/Fail Criteria (Lead):** 10 ug/L

**Overall Percent Reduction:** 77.1 %

**Maximum Effluent:** 85 ug/L

**All effluent values are less than or equal to the pass/fail criteria:** NO

§ Data provided by customer and can affect the validity of the results



## Data Summary Table

Sample Point	Accumulated Volume (gal)		Dynamic Pressure (psi)	Lead (ug/L)		Total Particulate (%)
	Effluent 1	Effluent 2	Influent	Effluent 1	Effluent 2	Influent
Startup	11	14	59	ND(0.5)	1.4	29
25%	334	333	60	34	29	33
50%	662	662	60	85	56	31

Sample Point	Fine Particulate (%)	Flow Rate (gpm)		Lead (ug/L)	pH
	Influent	Effluent 1	Effluent 2	Influent	Influent
Startup	75	1.1	1.4	140	8.53
25%	60	1.2	1.5	150	8.53
50%	60	1.1	1.5	160	8.48

**Lead Detection Limit:** 0.5 ug/L

**pH Detection Limit:** 0.01

## Water Characteristics

Characteristic	Units	Range		
		Minimum	Average	Maximum
Alkalinity as CaCO <sub>3</sub>	mg/LCaCO <sub>3</sub>	100	100	100
Chlorine, Total Residual	mg/L	0.43	0.43	0.43
Hardness, Total	mg/LCaCO <sub>3</sub>	110	110	110
Temperature	degrees C	22	22	22
pH		8.53		8.53
Total Particulate	%	29	29	29

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

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Test Configuration



**NSF International**

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# TEST REPORT

**Send To: C0506208**

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Switzerland

**Facility: C0506210**

HYTECON Forschung und Entwicklung GmbH  
Oststraße 68  
32051 Herford  
Germany

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Report Date 08-DEC-2020

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Customer Name	Hytecon AG
Tested To	Standard 55 Microbiological Reduction, Q-Beta
Description	Hypro water
Test Type	Qualification
Job Number	J-00360682
Project Number	W0612337
Project Manager	Kari Grounds

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**Thank you for having your product tested by NSF International.**

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

**Report Authorization**

David Semak - Director, Engineering Laboratory

**Date** 08-DEC-2020

**Standard 55 Microbiological Reduction, Q-Beta: PASS**

**Manufacturer's Name:** HYTECON Forschung und Entwicklung GmbH

**Job ID:** J-00360682

**Test After EPSF:** J-00360684

**Date of Job Creation:** 05-OCT-2020

**Date Sample Received:** 05-OCT-2020

**Date Job Placed on Hold:** 14-OCT-2020

**Date Job Released from Hold:** 22-OCT-2020

**Date Test Completed:** 07-DEC-2020

**Sample Type:** Qualification

§ **Control Flow:** Yes

**DCC Number:** PW09231

§ **Flushing Time:** 180 sec

§ **Maximum Rated Op. Pressure:** 58 psi

**NSF 55 Test Option:** Class B, LED, Sensor, Qbeta

§ **On Cycle:** 50/50

§ **Percent Capacity:** 100%

§ **Physical Description of Sample:** Plumbed in to Separate Tap without Reservoir

§ **Rated Service Flow:** 3 LPM

**Standard Version:** NSF/ANSI 55-2019: Ultraviolet Microbiological Water Treatment Systems

**Test Description:** Std. 55 Class B - Hypro water - QQ

§ **Trade Designation/Model Number:** Hypro water

**Performance Standard:** 055

**Reduction Performance P/F:** PASS

**Required Reduction:** 1.50 Log

**Influent Geometric Mean:** 146000 PFU/mL

**Geometric Mean:** 627 PFU/mL

**Geometric Mean:** 309 PFU/mL

**Effluent Log Reduction 1:** 2.367 Log

**Effluent Log Reduction 2:** 2.674 Log

§ Data provided by customer and can affect the validity of the results

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**Job Note:** The sampling schedule is designed to evaluate the system's performance under three conditions: 1) Initial effectiveness after a minimum 16h period of no flow 2) Steady state effectiveness after a minimum of 15min of operation and 3) Immediately after the system has set stagnant for 48 – 72h. Each sample point is an individual evaluation of the product performance. While the days were not sequential, all of the required samples were collected and the Standard requirements were met.

## Data Summary Table

Sample Point	Dynamic Pressure (psi)	Q-beta (PFU/mL)			U.V. Transmittance (% Transmit)
	Influent	Influent	Effluent 1	Effluent 2	Influent
1 Start	62	130000	420	540	99
2 Operation	63	269000	500	620	99
3 Start	63	114000	500	640	98
4 Operation	62	116000	720	230	98
5 Start	63	114000	560	730	98
6 Operation	63	118000	700	ND(0.00)	98
7 Start	62	170000	1600	860	98
8 Operation	63	238000	500	640	98
9 Start	65	137000	580	660	100
10 Operation	63	124000	700	610	100

Sample Point	Flow Rate (gpm)	
	Effluent 1	Effluent 2
1 Start	1.2	1.2
2 Operation	1.2	1.2
3 Start	1.2	1.2
4 Operation	1.2	1.2
5 Start	1.2	1.2
6 Operation	1.2	1.2
7 Start	1.2	1.2
8 Operation	1.2	1.2
9 Start	1.2	1.2
10 Operation	1.2	1.2

**U.V. Transmittance Detection Limit:** 0.01 % Transmit

## Data Analysis Table

Sample Point	Geo Mean (PFU/mL)		Inf. Geo Mean (PFU/mL)
	Effluent 1	Effluent 2	
1 Start	420	540	130000
2 Operation	460	580	187000
3 Start	470	600	159000
4 Operation	520	470	147000
5 Start	530	510	139000
6 Operation	550	180	136000
7 Start	650	230	140000
8 Operation	620	260	150000
9 Start	620	290	148000
10 Operation	630	310	146000

**Inf. Geo Mean:** Influent Geometric Mean

**Geo Mean:** Geometric Mean

## Water Characteristics

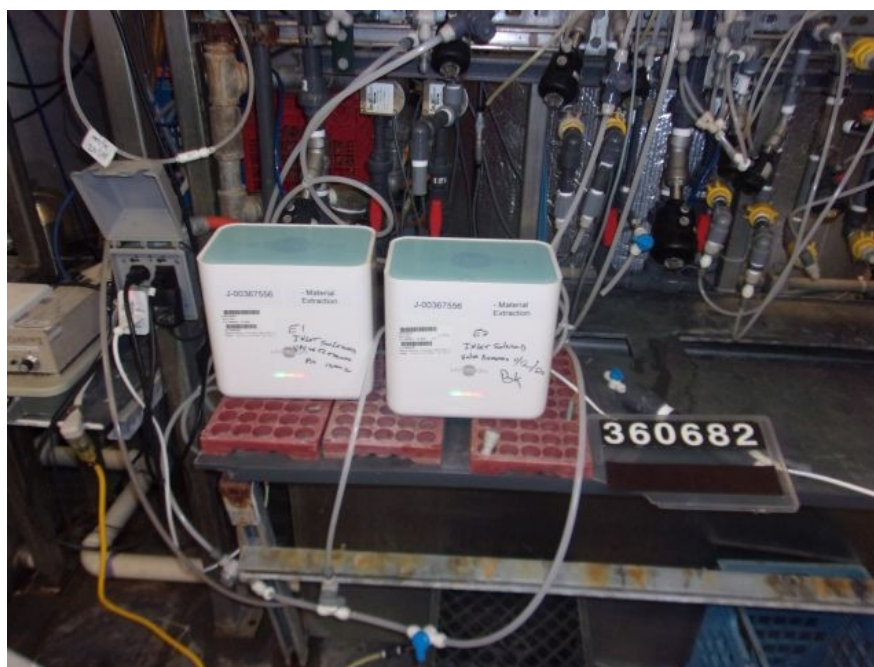
Characteristic	Units	Range		
		Minimum	Average	Maximum
Chlorine, Total	mg/L	ND(0.05)	ND(0.05)	ND(0.05)
Solids, Total Dissolved	mg/L	240	260	280
Temperature	degrees C	20	22	22
Turbidity	NTU	0.1	0.1	0.1
U.V. Transmittance	% Transmit	98	99	100
pH		7.01		7.84

All analyses performed at NSF International, 789 N. Dixboro Road, Ann Arbor MI 48105

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### Calculation Definitions

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Test Configuration