



## **AGIS Fire & Security**

Palisadowa 20/22  
01-940 Warszawa  
Phone: (022)4308301  
TFS & BP FM-200 FLOW CALCULATION TSP3.12b  
Project: POMERANIA  
File Name: Serw\_A012.FLC

## **Consolidated Report**

### **Customer Information**

Company Name: Przedsiębiorstwo usług specjalistycznych MVB  
Address: Widuchowska 19  
71-718 Szczecin

Phone:  
Contact:  
Title:

### **Project Data**

Project Name: POMERANIA  
TECHNOPARK  
Designer: Krzysztof Majcher  
Number:  
Account:  
Location:  
Description:

## Consolidated Report Enclosure Information

Elevation: 0 m (relative to sea level)  
Atmospheric Correction Factor: 1

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Enclosure Number: 1  
Name: Przestrzeń właściwa  
Enclosure Temperature...  
Minimum: 20,0 C  
Maximum: 25,0 C  
Maximum Concentration: 8,765 %  
Design Concentration...  
Adjusted: 8,621 %  
Minimum: 8,500 %  
Minimum Agent Required: 110,0 kg  
Width: 0,00 m  
Length: 0,00 m  
Height: 0,00 m

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Volume: 162,07 cubic m  
Non-permeable: 0,00 cubic m

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Total Volume: 162,07 cubic m  
Adjusted Agent Required: 111,7 kg  
Number of Nozzles: 1

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Enclosure Number: 2  
Name: Podłoga techniczna  
Enclosure Temperature...  
Minimum: 20,0 C  
Maximum: 25,0 C  
Maximum Concentration: 8,757 %  
Design Concentration...  
Adjusted: 8,613 %  
Minimum: 8,500 %  
Minimum Agent Required: 14,1 kg  
Width: 0,00 m  
Length: 0,00 m  
Height: 0,00 m

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Volume: 20,77 cubic m  
Non-permeable: 0,00 cubic m

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Total Volume: 20,77 cubic m  
Adjusted Agent Required: 14,3 kg  
Number of Nozzles: 1

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## Consolidated Report Agent Information

Agent: FM-200 / Propellant N2  
(FM-200 is a Trademark of DuPont)

Adjusted Agent Required: 126,0 kg  
Container Name: 180L TPED Container Assy  
Container Part Number: 303.205.005  
Number of Main Containers: 1  
Number of Reserve Containers: 0  
Manifold: No Manifold  
  
Pipe Take Off Direction: Horizontal  
Agent Per Container: 126,0 kg  
Fill Density: 0,700 kg / l  
Container Empty Weight: 127,7 kg  
Weight, All Containers + Agent: 253,7 kg  
Floor Area Per Container: 0,13 square m  
Floor Loading Per Container: 1960 kg /square m

### Pipe Network

Part 1 - Pipe			Pipe			
Description	Start	End	Type	Diameter	Length	Elevation
Main Cyl. X 1	0	1		50 mm	1,63 m	1,63 m
Pipe	1	2	DIN244 0	50 mm	3,15 m	3,15 m
Pipe	2	3	DIN244 0	50 mm	0,55 m	0,00 m
Pipe	3	4	DIN244 0	50 mm	2,25 m	0,00 m
Pipe/E1-N1	4	5	DIN244 0	50 mm	0,10 m	0,10 m
Pipe	3	6	DIN244 0	20 mm	0,50 m	0,00 m
Pipe	6	7	DIN244 0	20 mm	0,55 m	0,00 m
Pipe	7	8	DIN244 0	20 mm	4,90 m	-4,90 m
Pipe	8	9	DIN244 0	20 mm	2,00 m	0,00 m

Page: 3 of 7

Calculation Date/Time: 23 październik 2013, 15:44:14

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## Consolidated Report

### Part 1 - Pipe

Description	Start	End	Type	Diameter	Pipe Length	Elevation
Pipe/E2-N1	9	10	DIN244 0	20 mm	0,10 m	-0,10 m

### Part 2 - Equivalent Length

Start	End	90	45	Thru	Side	Union	Other	Added	Total
0	1	0	0	0	0	0		0,00 m	10,67 m
1	2	1	0	0	0	0		0,00 m	4,82 m
2	3	1	0	0	0	0		0,00 m	2,23 m
3	4	0	0	1	0	0		0,00 m	3,32 m
4	5	1	0	0	0	0		0,00 m	1,77 m
3	6	0	0	0	1	0		0,00 m	1,86 m
6	7	1	0	0	0	0		0,00 m	1,22 m
7	8	1	0	0	0	0		0,00 m	5,58 m
8	9	1	0	0	0	0		0,00 m	2,68 m
9	10	1	0	0	0	0		0,00 m	0,76 m

### Part 3 - Nozzles

Start	End	Flow	Name	Size	Type	Nozzle Area
0	1	126,0 kg				
1	2	126,0 kg				
2	3	126,0 kg				
3	4	111,7 kg				
4	5	111,7 kg	E1-N1	50 mm	180-AL (BSP)	900,76 square mm
3	6	14,3 kg				
6	7	14,3 kg				
7	8	14,3 kg				
8	9	14,3 kg				
9	10	14,3 kg	E2-N1	20 mm	180-AL (BSP)	197,92 square mm

### Parts Information

Total Agent Required: 126,0 kg

Container Name: 180L TPED Container Assy (Part: 303.205.005)

Number Of Containers: 1

Nozzle	Type	Diameter	Nozzle Area	Part Number
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## Consolidated Report

Nozzle	Type	Diameter	Nozzle Area	Part Number
E1-N1	180-AL (BSP)	50 mm	900,76 square mm	310.205.113
E2-N1	180-AL (BSP)	20 mm	197,92 square mm	310.205.105

Nozzle	Drill Diameter	Drill Size
E1-N1	12,8000 mm	12.8 mm
E2-N1	6,0000 mm	6 mm

Pipe:	Type	Diameter	Length
	DIN2440	20 mm	8,05 m
	DIN2440	50 mm	6,05 m

List of 90 degree elbows:

4 - 20 mm

3 - 50 mm

List of Tees:

1 - 50 mm

## System Acceptance

**\* WARNING - The data in this project may have been changed after the calculations were performed.**

System Discharge Time: 8,7 seconds

Percent Agent In Pipe: 22,1%

Percent Agent Before First Tee: 13,0%

Enclosure Number: 1

Enclosure Name: Przestrzeń właściwa

Minimum Design Concentration: 8,500%

Adjusted Design Concentration: 8,621%

Predicted Concentration: 8,596%

Maximum Expected Agent Concentration: 8,739% (At 25,0 C)

Nozzle	Minimum Agent Required	Adjusted Agent Required	Predicted Agent Delivered	Nozzle Pressure (Average)
E1-N1	110,0 kg	111,7 kg	111,3 kg	11,500 bar

Enclosure Number: 2

Page: 5 of 7

Calculation Date/Time: 23 październik 2013, 15:44:14

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## Consolidated Report

Enclosure Name: Podłoga techniczna

Minimum Design Concentration: 8,500%

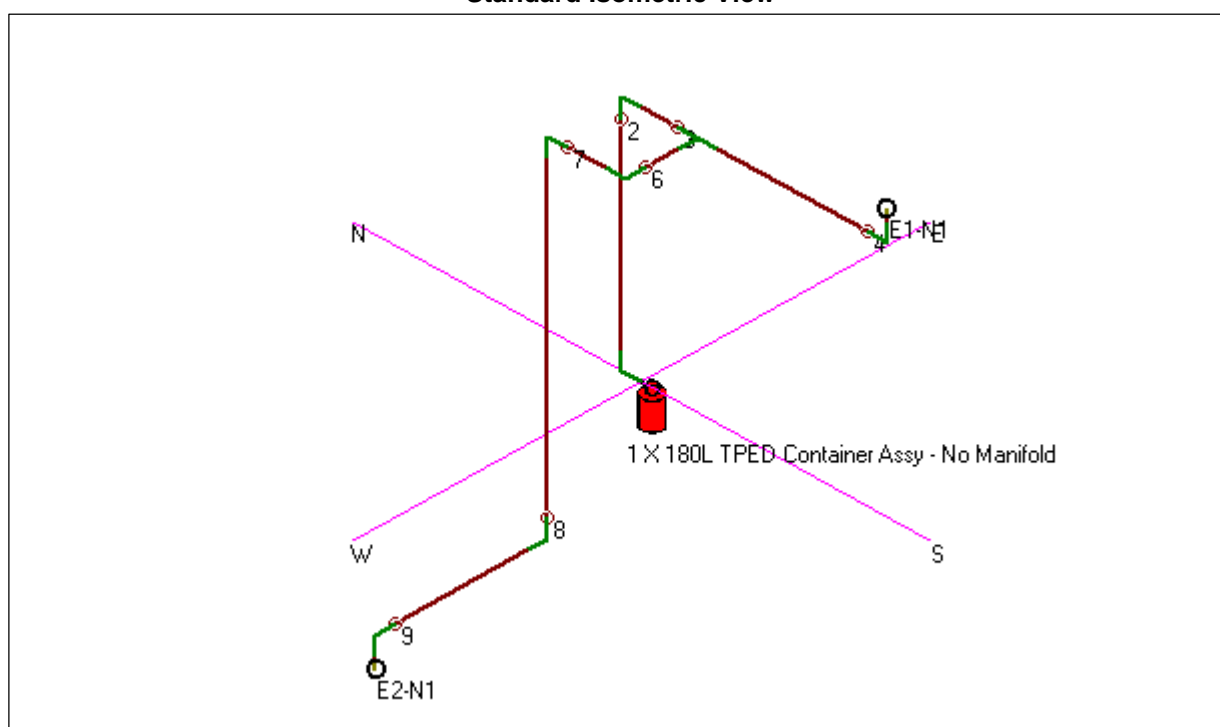
Adjusted Design Concentration: 8,613%

Predicted Concentration: 8,817%

Maximum Expected Agent Concentration: 8,964% (At 25,0 C)

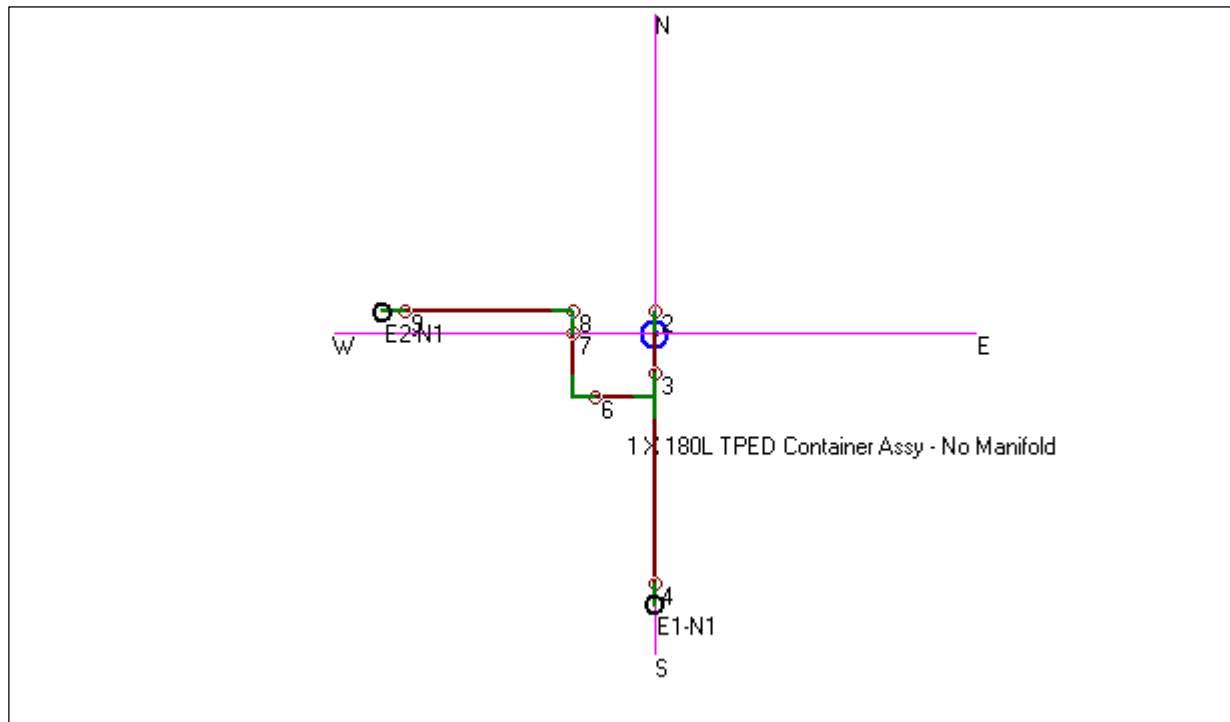
Nozzle	Minimum Agent Required	Adjusted Agent Required	Predicted Agent Delivered	Nozzle Pressure (Average)
E2-N1	14,1 kg	14,3 kg	14,7 kg	8,699 bar

### Standard Isometric View



## Consolidated Report

### Standard Plan View



### Standard Elevation View

