

Modélisation de la dispersion atmosphérique des  
toxiques en cas d'incendie de trois cellules de  
stockage de pneumatiques pour  
un total de 15 000 m<sup>2</sup> de grande hauteur

Incendie de trois cellules de stockage  
**Dispersion des suies**  
Condition A, vent 2 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1030 hours DST (using computer's clock)

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

**Wind: 2 meters/sec from SW at 3 meters**  
No Inversion Height  
**Stability Class: A (user override) Air Temperature: 20° C**  
Relative Humidity: 50% Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH INFORMATION:**

**Direct Source: 68.34 kilograms/sec Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 4,100 kilograms/min  
Total Amount Released: 246,024 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (79 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion des suies**  
Condition D, vent 5 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1032 hours DST (using computer's clock)

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

**Wind: 5 meters/sec from SW at 3 meters**

No Inversion Height

**Stability Class: D**

**Air Temperature: 20° C**

Relative Humidity: 50%

Ground Roughness: open country

Cloud Cover: 5 tenths

**SOURCE STRENGTH INFORMATION:**

**Direct Source: 68.34 kilograms/sec    Source Height: 123 meters**

Release Duration: 60 minutes

Release Rate: 4,100 kilograms/min

Total Amount Released: 246,024 kilograms

Note: This chemical may flash boil and/or result in two phase flow.

Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian

Red : **LOC is not exceeded** --- (79 mg/(cu m))

Note: Threat zone was not drawn because

the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion des suies**  
Condition F, vent 3 m/s

**SITE DATA INFORMATION:**

Location: CRIQUEBEUF-SUR-SEINE, FRANCE  
Building Air Exchanges Per Hour: 0.32 (sheltered single storied)  
Time: March 5, 2019 1448 hours ST (using computer's clock)

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

Wind: 3 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: F (user override)    Air Temperature: 15° C**  
Relative Humidity: 50%                      Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH INFORMATION:**

**Direct Source: 68.34 kilograms/sec    Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 4,100 kilograms/min  
Total Amount Released: 246,024 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (79 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du Monoxyde de carbone**  
Condition A, vent 2 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1033 hours DST (using computer's clock)

**CHEMICAL INFORMATION:**

Chemical Name: CARBON MONOXIDE      Molecular Weight: 28.01 g/mol  
ERPG-3: 500 ppm    ERPG-2: 350 ppm    ERPG-1: 200 ppm  
IDLH: 1200 ppm  
Normal Boiling Point: -191.5° C      Ambient Boiling Point: -191.7° C  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

**Wind: 2 meters/sec from SW at 3 meters**  
No Inversion Height  
**Stability Class: A (user override)    Air Temperature: 20° C**  
Relative Humidity: 50%      Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH:**

**Direct Source: 33.15 kilograms/sec    Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 1,990 kilograms/min  
Total Amount Released: 119,340 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (3680 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (920 mg/(cu m))

Incendie de trois cellules de stockage  
**Dispersion du Monoxyde de carbone**  
Condition D, vent 5 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1036 hours DST (using computer's clock)

**CHEMICAL INFORMATION:**

Chemical Name: CARBON MONOXIDE      Molecular Weight: 28.01 g/mol  
ERPG-3: 500 ppm    ERPG-2: 350 ppm    ERPG-1: 200 ppm  
IDLH: 1200 ppm  
Normal Boiling Point: -191.5° C      Ambient Boiling Point: -191.7° C  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

Wind: 5 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: D**                      **Air Temperature: 20° C**  
Relative Humidity: 50%                  Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH:**

**Direct Source: 33.15 kilograms/sec    Source Height: 123 meters**  
Release Duration: 60 minutes  
Release Rate: 1,990 kilograms/min  
Total Amount Released: 119,340 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (3680 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (920 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du Monoxyde de carbone**  
Condition F, vent 3 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.65 (unsheltered single storied)  
Time: March 12, 2019 1035 hours DST (using computer's clock)

**CHEMICAL INFORMATION:**

Chemical Name: CARBON MONOXIDE      Molecular Weight: 28.01 g/mol  
ERPG-3: 500 ppm    ERPG-2: 350 ppm    ERPG-1: 200 ppm  
IDLH: 1200 ppm  
Normal Boiling Point: -191.5° C      Ambient Boiling Point: -191.7° C  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

Wind: 3 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: F (user override)    Air Temperature: 15° C**  
Relative Humidity: 50%      Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH:**

**Direct Source: 33.15 kilograms/sec    Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 1,990 kilograms/min  
Total Amount Released: 119,340 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (3680 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (920 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du Dioxyde de carbone**  
Condition A, vent 2 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1046 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: CARBON DIOXIDE  
CAS Number: 124-38-9                      Molecular Weight: 44.01 g/mol  
IDLH: 40000 ppm  
Normal Boiling Point: -unavail-  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%  
Note: Not enough chemical data to use Heavy Gas option

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

Wind: 2 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: A (user override)    Air Temperature: 20° C**  
Relative Humidity: 50%                      Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH:**

**Direct Source: 883.83 kilograms/sec    Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 53,000 kilograms/min  
Total Amount Released: 3,181,788 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (899800 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du Dioxyde de carbone**  
Condition D, vent 5 m/s

SITE DATA:

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1049 hours DST (using computer's clock)

CHEMICAL DATA:

Chemical Name: CARBON DIOXIDE  
CAS Number: 124-38-9                      Molecular Weight: 44.01 g/mol  
IDLH: 40000 ppm  
Normal Boiling Point: -unavail-  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%  
Note: Not enough chemical data to use Heavy Gas option

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)

**Wind: 5 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 20° C**                      **Stability Class: D**  
No Inversion Height                      Relative Humidity: 50%

SOURCE STRENGTH:

**Direct Source: 883.83 kilograms/sec**    **Source Height: 123 meters**  
Release Duration: 60 minutes  
Release Rate: 53,000 kilograms/min  
Total Amount Released: 3,181,788 kilograms

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (899800 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du Dioxyde de carbone**  
Condition F, vent 3 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.65 (unsheltered single storied)  
Time: March 12, 2019 1048 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: CARBON DIOXIDE  
CAS Number: 124-38-9                      Molecular Weight: 44.01 g/mol  
IDLH: 40000 ppm  
Normal Boiling Point: -unavail-  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%  
Note: Not enough chemical data to use Heavy Gas option

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 3 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 15° C**  
**Stability Class: F (user override)**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 883.83 kilograms/sec    Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 53,000 kilograms/min  
Total Amount Released: 3,181,788 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (899800 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du SO<sub>2</sub>**  
Condition A, vent 2 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1050 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: SULFUR DIOXIDE  
CAS Number: 7446-9-5                      Molecular Weight: 64.06 g/mol  
AEGL-1 (60 min): 0.2 ppm    AEGL-2 (60 min): 0.75 ppm    AEGL-3 (60 min): 30 ppm  
IDLH: 100 ppm  
Ambient Boiling Point: -10.1° C  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 2 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 20° C**  
**Stability Class: A (user override)**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 4.49 kilograms/sec      Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 269 kilograms/min  
Total Amount Released: 16,164 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (1885 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (211 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du SO<sub>2</sub>**  
Condition D, vent 5 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1051 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: SULFUR DIOXIDE  
CAS Number: 7446-9-5                      Molecular Weight: 64.06 g/mol  
AEGL-1 (60 min): 0.2 ppm   AEGL-2 (60 min): 0.75 ppm   AEGL-3 (60 min): 30 ppm  
IDLH: 100 ppm  
Ambient Boiling Point: -10.1° C  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 5 meters/second from SW at 3 meters**  
Ground Roughness: open country                      Cloud Cover: 5 tenths  
**Air Temperature: 20° C                      Stability Class: D**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 4.49 kilograms/sec      Source Height: 123 meters**  
Release Duration: 60 minutes  
Release Rate: 269 kilograms/min  
Total Amount Released: 16,164 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (1885 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (211 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du SO<sub>2</sub>**  
Condition F, vent 3 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.65 (unsheltered single storied)  
Time: March 12, 2019 1051 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: SULFUR DIOXIDE  
CAS Number: 7446-9-5                      Molecular Weight: 64.06 g/mol  
AEGL-1 (60 min): 0.2 ppm   AEGL-2 (60 min): 0.75 ppm   AEGL-3 (60 min): 30 ppm  
IDLH: 100 ppm  
Ambient Boiling Point: -10.1° C  
Vapor Pressure at Ambient Temperature: greater than 1 atm  
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 3 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 15° C**  
**Stability Class: F (user override)**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 4.49 kilograms/sec      Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 269 kilograms/min  
Total Amount Released: 16,164 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (1885 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (211 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du NO<sub>2</sub>**  
Condition A, vent 2 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1052 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: NITROGEN DIOXIDE  
CAS Number: 10102-44-0                      Molecular Weight: 46.01 g/mol  
AEGL-1 (60 min): 0.5 ppm    AEGL-2 (60 min): 12 ppm    AEGL-3 (60 min): 20 ppm  
IDLH: 20 ppm  
Ambient Boiling Point: 21.0° C  
Vapor Pressure at Ambient Temperature: 0.95 atm  
Ambient Saturation Concentration: 952,328 ppm or 95.2%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 2 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 20° C**  
**Stability Class: A (user override)**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 1.28 kilograms/sec    Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 76.8 kilograms/min  
Total Amount Released: 4,608 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (132 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (75 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du NO<sub>2</sub>**  
Condition D, vent 5 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1054 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: NITROGEN DIOXIDE  
CAS Number: 10102-44-0                      Molecular Weight: 46.01 g/mol  
AEGL-1 (60 min): 0.5 ppm    AEGL-2 (60 min): 12 ppm    AEGL-3 (60 min): 20 ppm  
IDLH: 20 ppm  
Ambient Boiling Point: 21.0° C  
Vapor Pressure at Ambient Temperature: 0.95 atm  
Ambient Saturation Concentration: 952,328 ppm or 95.2%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 5 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 20° C                      Stability Class: D**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 1.28 kilograms/sec      Source Height: 123 meters**  
Release Duration: 60 minutes  
Release Rate: 76.8 kilograms/min  
Total Amount Released: 4,608 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (132 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (75 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du NO<sub>2</sub>**  
Condition F, vent 3 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.65 (unsheltered single storied)  
Time: March 12, 2019 1053 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: NITROGEN DIOXIDE  
CAS Number: 10102-44-0                      Molecular Weight: 46.01 g/mol  
AEGL-1 (60 min): 0.5 ppm    AEGL-2 (60 min): 12 ppm    AEGL-3 (60 min): 20 ppm  
IDLH: 20 ppm  
Ambient Boiling Point: 21.0° C  
Vapor Pressure at Ambient Temperature: 0.75 atm  
Ambient Saturation Concentration: 749,848 ppm or 75.0%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 3 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 15° C**  
**Stability Class: F (user override)**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 1.28 kilograms/sec      Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 76.8 kilograms/min  
Total Amount Released: 4,608 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (132 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (75 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du formol**  
Condition A, vent 2 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1055 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: FORMIC ACID  
CAS Number: 64-18-6                      Molecular Weight: 46.03 g/mol  
ERPG-1: 3 ppm    ERPG-2: 25 ppm    ERPG-3: 250 ppm  
IDLH: 30 ppm    LEL: 120000 ppm    UEL: 380000 ppm  
Ambient Boiling Point: 100.4° C  
Vapor Pressure at Ambient Temperature: 0.044 atm  
Ambient Saturation Concentration: 44,059 ppm or 4.41%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 2 meters/second from SW at 3 meters**  
Ground Roughness: open country      Cloud Cover: 5 tenths  
**Air Temperature: 20° C**  
**Stability Class: A (user override)**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 0.05 kilograms/sec    Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 3 kilograms/min  
Total Amount Released: 180 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (32 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (12 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du formol**  
Condition D, vent 5 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1056 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: FORMIC ACID  
CAS Number: 64-18-6                      Molecular Weight: 46.03 g/mol  
ERPG-1: 3 ppm    ERPG-2: 25 ppm    ERPG-3: 250 ppm  
IDLH: 30 ppm    LEL: 120000 ppm    UEL: 380000 ppm  
Ambient Boiling Point: 100.4° C  
Vapor Pressure at Ambient Temperature: 0.044 atm  
Ambient Saturation Concentration: 44,059 ppm or 4.41%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 5 meters/second from SW at 3 meters**  
Ground Roughness: open country              Cloud Cover: 5 tenths  
**Air Temperature: 20° C                      Stability Class: D**  
No Inversion Height                      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 0.05 kilograms/sec    Source Height: 123 meters**  
Release Duration: 60 minutes  
Release Rate: 3 kilograms/min  
Total Amount Released: 180 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (32 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (12 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion du formol**  
Condition F, vent 3 m/s

**SITE DATA:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.65 (unsheltered single storied)  
Time: March 12, 2019 1056 hours DST (using computer's clock)

**CHEMICAL DATA:**

Chemical Name: FORMIC ACID  
CAS Number: 64-18-6      Molecular Weight: 46.03 g/mol  
ERPG-1: 3 ppm    ERPG-2: 25 ppm    ERPG-3: 250 ppm  
IDLH: 30 ppm    LEL: 120000 ppm    UEL: 380000 ppm  
Ambient Boiling Point: 100.4° C  
Vapor Pressure at Ambient Temperature: 0.034 atm  
Ambient Saturation Concentration: 34,115 ppm or 3.41%

**ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)**

**Wind: 3 meters/second from SW at 3 meters**  
Ground Roughness: open country      Cloud Cover: 5 tenths  
**Air Temperature: 15° C**  
**Stability Class: F (user override)**  
No Inversion Height      Relative Humidity: 50%

**SOURCE STRENGTH:**

**Direct Source: 0.05 kilograms/sec    Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 3 kilograms/min  
Total Amount Released: 180 kilograms

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (32 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (12 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion des fumées d'incendie\_ Seuils équivalents**  
Condition A, vent 2 m/s

SITE DATA INFORMATION:

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.42 (unsheltered single storied)  
Time: March 12, 2019 1037 hours DST (using computer's clock)

ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)

Wind: 2 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: A (user override)    Air Temperature: 20° C**  
Relative Humidity: 50%                      Ground Roughness: open country  
Cloud Cover: 5 tenths

SOURCE STRENGTH:

**Direct Source: 1021.275 kilograms/sec**  
**Source Height: 307 meters**  
Release Duration: 60 minutes  
Release Rate: 61,300 kilograms/min  
Total Amount Released: 3,676,590 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
    Use both dispersion modules to investigate its potential behavior.

THREAT ZONE: (GAUSSIAN SELECTED)

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (31018 mg/(cu m))  
Note: Threat zone was not drawn because  
    the ground level concentrations never exceed the LOC.  
Orange : **LOC is not exceeded** --- (11346 mg/(cu m))  
Note: Threat zone was not drawn because  
    the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion des fumées d'incendie\_ Seuls équivalents**  
Condition D, vent 5 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 1.04 (unsheltered single storied)  
Time: March 12, 2019 1045 hours DST (using computer's clock)

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

Wind: 5 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: D**                      **Air Temperature: 20° C**  
Relative Humidity: 50%                      Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH:**

**Direct Source: 1021.275 kilograms/sec**  
**Source Height: 123 meters**  
Release Duration: 60 minutes  
Release Rate: 61,300 kilograms/min  
Total Amount Released: 3,676,590 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (31018 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (11346 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.

Incendie de trois cellules de stockage  
**Dispersion des fumées d'incendie\_ Seuils équivalents**  
Condition F, vent 3 m/s

**SITE DATA INFORMATION:**

Location: HEUDEBOUVILLE, FRANCE  
Building Air Exchanges Per Hour: 0.65 (unsheltered single storied)  
Time: March 12, 2019 1038 hours DST (using computer's clock)

**ATMOSPHERIC INFORMATION: (MANUAL INPUT OF DATA)**

Wind: 3 meters/sec from SW at 3 meters  
No Inversion Height  
**Stability Class: F (user override) Air Temperature: 20° C**  
Relative Humidity: 50% Ground Roughness: open country  
Cloud Cover: 5 tenths

**SOURCE STRENGTH:**

**Direct Source: 1021.275 kilograms/sec**  
**Source Height: 205 meters**  
Release Duration: 60 minutes  
Release Rate: 61,300 kilograms/min  
Total Amount Released: 3,676,590 kilograms  
Note: This chemical may flash boil and/or result in two phase flow.  
Use both dispersion modules to investigate its potential behavior.

**THREAT ZONE: (GAUSSIAN SELECTED)**

Model Run: Gaussian  
Red : **LOC is not exceeded** --- (31018 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.  
Orange: **LOC is not exceeded** --- (11346 mg/(cu m))  
Note: Threat zone was not drawn because  
the ground level concentrations never exceed the LOC.