

Thermal Radiation Threat Zone

ALOHA® 5.4.7



Time: April 11, 2025 1546 hours ST (user specified)

Chemical Name: ETHYLENE OXIDE

Carcinogenic risk - see CAMEO Chemicals

Wind: 3.3 meters/second from W at 3 meters

THREAT ZONE:

Threat Modeled: Thermal radiation from jet fire

Red : less than 10 meters(10.9 yards) --- (7 kW/(sq m))

Orange: less than 10 meters(10.9 yards) --- (5.0 kW/(sq m) = 2nd degree
burns within 60 sec)

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SITE DATA:

Location: AVENIDA DA FABRICA 298, PENA, PORTUGAL
Building Air Exchanges Per Hour: 0.38 (sheltered double storied)
Time: April 11, 2025 1546 hours ST (user specified)

CHEMICAL DATA:

Chemical Name: ETHYLENE OXIDE
CAS Number: 75-21-8 Molecular Weight: 44.05 g/mol
AEGL-1 (60 min): N/A AEGL-2 (60 min): 45 ppm AEGL-3 (60 min): 200 ppm
IDLH: 800 ppm LEL: 30000 ppm UEL: 1000000 ppm
Carcinogenic risk - see CAMEO Chemicals
Ambient Boiling Point: 9.8° 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: 3.3 meters/second from W at 3 meters
Ground Roughness: urban or forest Cloud Cover: 5 tenths
Air Temperature: 15° C Stability Class: D
No Inversion Height Relative Humidity: 78%

SOURCE STRENGTH:

Leak from short pipe or valve in horizontal cylindrical tank
Flammable chemical is burning as it escapes from tank
Tank Diameter: 0.77 meters Tank Length: 2 meters
Tank Volume: 930 liters
Tank contains liquid Internal Temperature: 15° C
Chemical Mass in Tank: 700 kilograms
Tank is 85% full
Circular Opening Diameter: 0.05 inches
Opening is 40 centimeters from tank bottom
Max Flame Length: 1 meter
Burn Duration: ALOHA limited the duration to 1 hour
Max Burn Rate: 122 grams/min
Total Amount Burned: 7.29 kilograms
Note: The chemical escaped from the tank and burned as a jet fire.

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