

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

1. NCM por terjedése - halálozás

1 Model: Neutral Gas - Toxic Dose

version: v2024.01.3c37c12 (2024. 01. 17.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Chapter 4

| Parameters | | | | | |
|---|--|--|--|--|--|
| Inputs | D1 | D3 | F1 | B3 | F3 |
| Process Conditions | | | | | |
| Chemical name | NMC probit, levegő, BEVI, II-es csom.csop. (AIR) (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR) (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR) (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR) (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR) (DIPPR, edited) |
| Source Definition | | | | | |
| Type of neutral gas release | Instantaneous | Instantaneous | Instantaneous | Instantaneous | Instantaneous |
| Total mass released (kg) | 80 | 80 | 80 | 80 | 80 |
| Length source in wind (x) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Width source in crosswind (y) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Height source in vertical (z) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Process Dimensions | | | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 | 2 | 2 |
| Meteo Definition | | | | | |
| Meteorological data | Pasquill | Pasquill | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | D (Neutral) | D (Neutral) | F (Very Stable) | B (Unstable) | F (Very Stable) |
| Wind speed at 10 m height (m/s) | 1 | 3 | 1 | 3 | 3 |
| Predefined wind direction | W | W | W | W | W |
| Environment | | | | | |
| Ambient temperature (°C) | 11 | 11 | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 | 1,0151 | 1,0151 |
| North/South latitude of the location (deg) | 51 | 51 | 51 | 51 | 51 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | | | |
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No | No | No |
| Accuracy | | | | | |
| Grid resolution | Low | Low | Low | Low | Low |
| Reporting | | | | | |
| Reporting/receiver distance (Xd) (m) | 500 | 500 | 500 | 500 | 500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No | No | No |
| Use dynamic concentration presentation | No | No | No | No | No |
| Results | | | | | |
| Meteo Definition | | | | | |
| Mixing height used (m) | 207 | 500 | 50 | 1500 | 69 |
| Concentration Results | | | | | |
| Threshold concentration used (mg/m3) | 745,18 | 745,18 | 745,18 | 745,18 | 745,18 |
| Toxic Results | | | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 2,1748E05 | 72574 | 6,8672E06 | 3518,6 | 2,2882E06 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | | | |
|-------------------------------------|-----------------------------|--------|--------|--------|--------|
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 2383,5 | 2383,5 | 2383,5 | 2383,5 | 2383,5 |
| Contour maximum distances | | | | | |
| Lethality contours distance [m] | D1 | D3 | F1 | B3 | F3 |
| 1 % lethality dose | 179 | 137 | 398 | 70 | 299 |
| 10 % lethality dose | 138 | 105 | 303 | 55 | 226 |
| 100 % lethality dose | 36 | 23 | 61 | 14 | 36 |
| Concentration contours distance [m] | | | | | |
| 1% lethality concentration at 1.5m | 376 | 376 | 740 | 215 | 740 |
| Other information | | | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | | | |
| Last calculation | 2024. 01. 31. 8:53:35 | | | | |

2. NCM por terjedése - sérülés

2 Model: Neutral Gas - Toxic Dose

version: v2024.01.3c37c12 (2024. 01. 17.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Chapter 4

| | | | | | |
|---|--|--|--|--|--|
| Parameters | | | | | |
| Inputs | F3_sérülés | D3_sérülés | B3_sérülés | F1_sérülés | D1_sérülés |
| Process Conditions | | | | | |
| Chemical name | NMC probit, levegő, BEVI, II-es csom.csop. (AIR)_sérülés (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR)_sérülés (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR)_sérülés (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR)_sérülés (DIPPR, edited) | NMC probit, levegő, BEVI, II-es csom.csop. (AIR)_sérülés (DIPPR, edited) |
| Source Definition | | | | | |
| Type of neutral gas release | Instantaneous | Instantaneous | Instantaneous | Instantaneous | Instantaneous |
| Total mass released (kg) | 80 | 80 | 80 | 80 | 80 |
| Length source in wind (x) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Width source in crosswind (y) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Height source in vertical (z) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Process Dimensions | | | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 | 2 | 2 |
| Meteo Definition | | | | | |
| Meteorological data | Pasquill F (Very Stable) | Pasquill D (Neutral) | Pasquill B (Unstable) | Pasquill F (Very Stable) | Pasquill D (Neutral) |
| Pasquill stability class | | | | | |
| Wind speed at 10 m height (m/s) | 3 | 3 | 3 | 1 | 1 |
| Predefined wind direction | W | W | W | W | W |
| Environment | | | | | |
| Ambient temperature (°C) | 11 | 11 | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 | 1,0151 | 1,0151 |
| North/South latitude of the location (deg) | 51 | 51 | 51 | 51 | 51 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | | | |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | | | |
|---|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No | No | No |
| Accuracy | | | | | |
| Grid resolution | Low | Low | Low | Low | Low |
| Reporting | | | | | |
| Reporting/receiver distance (Xd) (m) | 500 | 500 | 500 | 500 | 500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No | No | No |
| Use dynamic concentration presentation | No | No | No | No | No |
| Results | F3_sérülés | D3_sérülés | B3_sérülés | F1_sérülés | D1_sérülés |
| Meteo Definition | | | | | |
| Mixing height used (m) | 69 | 500 | 1500 | 50 | 207 |
| Concentration Results | | | | | |
| Threshold concentration used (mg/m3) | 165,6 | 165,6 | 165,6 | 165,6 | 165,6 |
| Toxic Results | | | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 2,2869E06 | 73978 | 3518,6 | 6,8637E06 | 2,2197E05 |
| Lethality at (Xd, Yd, Zd) (-) | 0,13 | 0 | 0 | 0,57 | 0 |
| LC50 Human 30 min (mg/m3) | 443,6 | 443,6 | 443,6 | 443,6 | 443,6 |
| Contour maximum distances | | | | | |
| Lethality contours distance [m] | F3_sérülésD3_sérülésB3_sérülésF1_sérülésD1_sérülés | | | | |
| 1 % lethality dose | 649 | 283 | 143 | 855 | 367 |
| 10 % lethality dose | 518 | 228 | 116 | 683 | 298 |
| 100 % lethality dose | 169 | 78 | 42 | 229 | 108 |
| Concentration contours distance [m] | | | | | |
| 1% lethality concentration at 1.5m | 1345 | 668 | 378 | 1341 | 668 |
| Other information | | | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | | | |
| Last calculation | 2024. 01. 31. 8:55:35 | | | | |

3. Oxigén tartályok - Robbanás

3 Model: Solid Explosion

version: v2024.01.a7bc7c6 (2024. 01. 17.)
Reference: Yellow Book 3rd edition (1997) Chapter 5, figure 5.6, (TNT blast correlation model). Kingery and Bulmash, Airblast parameters from TNT spherical air burst and hemispherical surface burst, ARBRL-TR-0255, 1984

| | | |
|---|-----------------|-----------------|
| Parameters | | |
| Inputs | Solid Explosion | Solid Explosion |
| Calculation Method | | |
| Type of TNT model | Based upon mass | Based upon mass |
| TNT equivalency factor (-) | 0,05 | 0,05 |
| Source Definition | | |
| TNT mass (kg) | 60228 | 2,4091E06 |
| Offset between release and explosion centre (m) | 0 | 0 |
| Meteo Definition | | |
| Predefined wind direction | W | W |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| Vulnerability | | |
|---|--------------------------|--------------------------|
| Pressure lethality based on | Threshold pressure level | Threshold pressure level |
| Peak pressure total destruction (Indoors+Outdoors) (mbar) | 300 | 300 |
| Lethality total destruction (Indoors+Outdoors) (-) | 1 | 1 |
| Peak pressure indoors (glass) lethality (mbar) | 100 | 100 |
| Lethality indoors (glass) (-) | 0,025 | 0,025 |
| Reporting | | |
| Reporting/receiver distance (Xd) (m) | 250 | 250 |

| Results | Solid Explosion | Solid Explosion |
|--|--|---|
| Explosion Results | | |
| Peak overpressure at Xd (mbar) | 73,128 | 423,12 |
| Pressure impulse at Xd (Pa*s) | 264,14 | 2896,6 |
| Positive phase duration at Xd (ms) | 82,271 | 188,23 |
| Equivalent TNT mass (kg) | 3011,4 | 1,2046E05 |
| Maximum peak overpressure (bar) | 6,6712 | 6,6712 |
| Confined mass in flammable range (kg) | 60228 | 2,4091E06 |
| Dist. centre mass of confined expl. cloud to study point (m) | 250 | 250 |
| Damage (general description) at Xd | Minor damage (Zone D: 3.5 - 17 kPa). | Heavy damage (Zone B: 35 - 83 kPa). |
| Damage to brick houses at Xd | Habitable after relatively easy repairs. Minor structural damage (3 kPa). | The damage is not repairable; 50% to 75% of the outer brick walls are lightly to heavily damaged. The remaining brick walls are unreliable (35 kPa). |
| Damage to typical American-style houses at Xd | Minor damage. Comparable to a damage due to a storm; wooden walls fail, breakage of windows (7-10 kPa). | Serious damage. Collapse of some walls (30 kPa). |
| Damage to structures (empirical) at Xd | Connections between steel or aluminium ondulated plates have failed 7-14 kPa). The roof of a storage tank has collapsed (7 kPa). | Collapse of a pipe-bridge (40-55 kPa). Displacement of a pipe-bridge, rupture of piping (35-40 kPa). Damage to a fractioning column (35-80 kPa). Plating of cars and trucks pressed inwards (35 kPa). Breakage of wooden telephone poles (35 kPa). Cladding of light industry building ripped-off (30 kPa). Collapse of steel frames and displacement of foundation (20 kPa). Industrial steel self-framing structure collapsed (20-30 kPa). Cracking in empty oil-storage tanks (20-30 kPa). Slight deformation of a pipe-bridge (20-30 kPa). Large trees have fallen down (20-40 kPa). Walls made of concrete blocks have collapsed (15-20). Minor damage to steel frames (8-10 kPa). Connections between steel or aluminium ondulated plates have failed 7-14 kPa). The roof of a |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | |
|--|-----------------------------|-------------------------------------|
| | | storage tank has collapsed (7 kPa). |
| Damage to windows (houses before 1975) at Xd (%) | 97,078 | 100 |
| Damage to windows (houses after 1975) at Xd (%) | 82,391 | 100 |
| Contour maximum distances | | |
| Overpressure contours distance [m] | Solid Explosion | Solid Explosion |
| 100 mbar overpressure contour | 195 | 668 |
| 207 mbar overpressure contour | 114 | 391 |
| 224 mbar overpressure contour | 109 | 371 |
| 1300 mbar overpressure contour | 41 | 140 |
| Lethality contours distance [m] | Solid Explosion | Solid Explosion |
| 1 % lethality contour | 90 | 307 |
| 10 % lethality contour | 90 | 307 |
| 100 % lethality contour | 90 | 307 |
| Other information | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | |
| Last calculation | 2024. 01. 31. 8:54:44 | |

4. MVR épülete - HF halálozás

4 Model: Neutral Gas - Toxic Dose

version: v2024.01.3c37c12 (2024. 01. 22.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Chapter 4

| | | | | | |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Parameters | | | | | |
| Inputs | D3 | F3 | B3 | F1 | D1 |
| Process Conditions | | | | | |
| Chemical name | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) |
| Source Definition | | | | | |
| Type of neutral gas release | Instantaneous | Instantaneous | Instantaneous | Instantaneous | Instantaneous |
| Total mass released (kg) | 2,3 | 2,3 | 2,3 | 2,3 | 2,3 |
| Length source in wind (x) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Width source in crosswind (y) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Height source in vertical (z) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Process Dimensions | | | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 | 2 | 2 |
| Meteo Definition | | | | | |
| Meteorological data | Pasquill | Pasquill | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | D (Neutral) | F (Very Stable) | B (Unstable) | F (Very Stable) | D (Neutral) |
| Wind speed at 10 m height (m/s) | 3 | 3 | 3 | 1 | 1 |
| Predefined wind direction | W | W | W | W | W |
| Environment | | | | | |
| Ambient temperature (°C) | 11 | 11 | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 | 1,0151 | 1,0151 |
| North/South latitude of the location (deg) | 51 | 51 | 51 | 51 | 51 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | | | |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | | | |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No | No | No |
| Accuracy | | | | | |
| Grid resolution | Low | Low | Low | Low | Low |
| Reporting | | | | | |
| Reporting/receiver distance (Xd) (m) | 500 | 500 | 500 | 500 | 500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No | No | No |
| Use dynamic concentration presentation | No | No | No | No | No |
| Results | D3 | F3 | B3 | F1 | D1 |
| Meteo Definition | | | | | |
| Mixing height used (m) | 500 | 69 | 1500 | 50 | 207 |
| Concentration Results | | | | | |
| Threshold concentration used (mg/m3) | 166,51 | 166,51 | 166,51 | 166,51 | 166,51 |
| Toxic Results | | | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 21,987 | 293,67 | 2,263 | 879,86 | 65,874 |
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 784,69 | 784,69 | 784,69 | 784,69 | 784,69 |
| Contour maximum distances | | | | | |
| Lethality contours distance [m] | D3 | F3 | B3 | F1 | D1 |
| 1 % lethality dose | 28 | 57 | 14 | 94 | 44 |
| 10 % lethality dose | 17 | 34 | 8 | 58 | 29 |
| 100 % lethality dose | 0 | 0 | 0 | 0 | 0 |
| Concentration contours distance [m] | | | | | |
| 1% lethality concentration at 1.5m | 172 | 325 | 100 | 325 | 172 |
| Other information | | | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | | | |
| Last calculation | 2024. 01. 31. 8:57:27 | | | | |

5. MVR épülete – HF sérülés

5 Model: Neutral Gas - Toxic Dose

version: v2024.01.3c37c12 (2024. 01. 22.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Chapter 4

| | | | | | |
|---|---|---|---|---|---|
| Parameters | | | | | |
| Inputs | F3 sérülés | D1 sérülés | D3 sérülés | B3 sérülés | F1 sérülés |
| Process Conditions | | | | | |
| Chemical name | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) |
| Source Definition | | | | | |
| Type of neutral gas release | Instantaneous | Instantaneous | Instantaneous | Instantaneous | Instantaneous |
| Total mass released (kg) | 2,3 | 2,3 | 2,3 | 2,3 | 2,3 |
| Length source in wind (x) direction (m) | 0 | 0 | 0 | 0 | 0 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | | | |
|---|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Width source in crosswind (y) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Height source in vertical (z) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Process Dimensions | | | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 | 2 | 2 |
| Meteo Definition | | | | | |
| Meteorological data | Pasquill | Pasquill | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | F (Very Stable) | D (Neutral) | D (Neutral) | B (Unstable) | F (Very Stable) |
| Wind speed at 10 m height (m/s) | 3 | 1 | 3 | 3 | 1 |
| Predefined wind direction | W | W | W | W | W |
| Environment | | | | | |
| Ambient temperature (°C) | 11 | 11 | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 | 1,0151 | 1,0151 |
| North/South latitude of the location (deg) | 51 | 51 | 51 | 51 | 51 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | | | |
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No | No | No |
| Accuracy | | | | | |
| Grid resolution | Low | Low | Low | Low | Low |
| Reporting | | | | | |
| Reporting/receiver distance (Xd) (m) | 500 | 500 | 500 | 500 | 500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No | No | No |
| Use dynamic concentration presentation | No | No | No | No | No |
| Results | | | | | |
| | F3 sérülés | D1 sérülés | D3 sérülés | B3 sérülés | F1 sérülés |
| Meteo Definition | | | | | |
| Mixing height used (m) | 69 | 207 | 500 | 1500 | 50 |
| Concentration Results | | | | | |
| Threshold concentration used (mg/m3) | 22,43 | 22,43 | 22,43 | 22,43 | 22,43 |
| Toxic Results | | | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 299,87 | 65,874 | 21,987 | 2,263 | 899,84 |
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 83,442 | 83,442 | 83,442 | 83,442 | 83,442 |
| Contour maximum distances | | | | | |
| Lethality contours distance [m] | F3 sérülésD1 sérülésD3 sérülésB3 sérülésF1 sérülés | | | | |
| 1 % lethality dose | 206 | 133 | 90 | 44 | 313 |
| 10 % lethality dose | 145 | 97 | 65 | 32 | 223 |
| 100 % lethality dose | 0 | 15 | 5 | 6 | 26 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| Concentration contours distance [m] | F3 sérülés | D1 sérülés | D3 sérülés | B3 sérülés | F1 sérülés |
|-------------------------------------|-----------------------------|------------|------------|------------|------------|
| 1% lethality concentration at 1.5m | 728 | 370 | 370 | 212 | 728 |
| Other information | | | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | | | |
| Last calculation | 2024. 01. 31. 8:58:20 | | | | |

6. MVR épülete – Raktártűz halálozás

6 Model: Dispersion - Toxic Dose

version: v2024.01.7726b62 (2024. 01. 29.)
Reference: Yellow Book 3rd edition 1997 chapter 4; Ermak, D.L. User manual for SLAB Lawrence Livermore National Laboratory, June 1990

| Parameters | | | |
|--|-----------------------------|-----------------------------------|-----------------------------|
| Inputs | SO2 | HX | NO2 |
| Process Conditions | | | |
| Chemical name | SULFUR DIOXIDE (DIPPR) | HYDROGEN CHLORIDE (DIPPR, edited) | NITROGEN DIOXIDE (DIPPR) |
| Calculation Method | | | |
| Type of release | Horizontal Jet release | Horizontal Jet release | Horizontal Jet release |
| Source Definition | | | |
| Mass flow rate of the source (kg/s) | 0,037 | 0,313 | 0,008 |
| Duration of the release (s) | 600 | 600 | 600 |
| Temperature after release (°C) | 50 | 50 | 50 |
| Initial liquid mass fraction (-) | 0 | 0 | 0 |
| Diameter of expanded jet (m) | 1 | 1 | 1 |
| Process Dimensions | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 |
| Offset X direction (distance) start dispersion (m) | 0 | 0 | 0 |
| Offset Z direction (height) start dispersion (m) | 0 | 0 | 0 |
| Meteo Definition | | | |
| Meteorological data | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | F (Very Stable) | F (Very Stable) | F (Very Stable) |
| Wind speed at 10 m height (m/s) | 1 | 1 | 1 |
| Predefined wind direction | W | W | W |
| Environment | | | |
| Ambient temperature (°C) | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 |
| Ambient relative humidity (%) | 83 | 83 | 83 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | |
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No |
| Accuracy | | | |
| Grid resolution | Low | Low | Low |
| Reporting | | | |
| Concentration averaging time (s) | 600 | 600 | 600 |
| Reporting/receiver distance (Xd) (m) | 2500 | 2500 | 2500 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | |
|---|-----------------------------|------------|---------|
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No |
| Use dynamic concentration presentation | No | No | No |
| Results | SO2 | HX | NO2 |
| Meteo Definition | | | |
| Inverse Monin-Obukhov length (1/L) used (1/m) | 0,04733 | 0,04733 | 0,04733 |
| Concentration Results | | | |
| Threshold concentration used (mg/m3) | 2201,5 | 1688,8 | 125,26 |
| Effective release height (m) | 2 | 2 | 2 |
| Toxic Results | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 5,6341E-17 | 3,4763E-07 | 0 |
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 5801,1 | 3171,6 | 234,84 |
| Contour maximum distances | | | |
| Lethality contours distance [m] | SO2 | HX | NO2 |
| 1 % lethality dose | | 41 | 80 |
| 10 % lethality dose | | 26 | 62 |
| 100 % lethality dose | | 0 | 7 |
| Concentration contours distance [m] | SO2 | HX | NO2 |
| 1% lethality concentration at 1.5m | | 130 | 109 |
| Other information | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | |
| Last calculation | 2024. 01. 31. 8:59:32 | | |

7. MVR épülete – Raktártűz sérülés

7 Model: Dispersion - Toxic Dose

version: v2024.01.7726b62 (2024. 01. 29.)

Reference: Yellow Book 3rd edition 1997 chapter 4; Ermak, D.L. User manual for SLAB Lawrence Livermore National Laboratory, June 1990

| | | | |
|--|--|---|--|
| Parameters | | | |
| Inputs | NO2_sérülés | SO2_sérülé | HX_sérülés |
| Process Conditions | | | |
| Chemical name | NITROGEN DIOXIDE_sérülés (DIPPR, edited) | SULFUR DIOXIDE_jó_sérülés (DIPPR, edited) | HYDROGEN CHLORIDE_jó_sérülés (DIPPR, edited) |
| Calculation Method | | | |
| Type of release | Horizontal Jet release | Horizontal Jet release | Horizontal Jet release |
| Source Definition | | | |
| Mass flow rate of the source (kg/s) | 0,008 | 0,037 | 0,313 |
| Duration of the release (s) | 600 | 600 | 600 |
| Temperature after release (°C) | 50 | 50 | 50 |
| Initial liquid mass fraction (-) | 0 | 0 | 0 |
| Diameter of expanded jet (m) | 1 | 1 | 1 |
| Process Dimensions | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 |
| Offset X direction (distance) start dispersion (m) | 0 | 0 | 0 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | |
|--|-----------------------------|-----------------------------|-----------------------------|
| Offset Z direction (height) start dispersion (m) | 0 | 0 | 0 |
| Meteo Definition | | | |
| Meteorological data | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | F (Very Stable) | F (Very Stable) | F (Very Stable) |
| Wind speed at 10 m height (m/s) | 1 | 1 | 1 |
| Predefined wind direction | W | W | W |
| Environment | | | |
| Ambient temperature (°C) | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 |
| Ambient relative humidity (%) | 83 | 83 | 83 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | |
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No |
| Accuracy | | | |
| Grid resolution | Low | Low | Low |
| Reporting | | | |
| Concentration averaging time (s) | 600 | 600 | 600 |
| Reporting/receiver distance (Xd) (m) | 2500 | 2500 | 2500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No |
| Use dynamic concentration presentation | No | No | No |
| Results | | | |
| | NO2_sérülés | SO2_sérülé | HX_sérülés |
| Meteo Definition | | | |
| Inverse Monin-Obukhov length (1/L) used (1/m) | 0,04733 | 0,04733 | 0,04733 |
| Concentration Results | | | |
| Threshold concentration used (mg/m3) | 55,575 | 628,95 | 747,62 |
| Effective release height (m) | 2 | 2 | 2 |
| Toxic Results | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 0 | 5,6341E-17 | 3,4763E-07 |
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 94,664 | 1429,6 | 1275,3 |
| Contour maximum distances | | | |
| Lethality contours distance [m] | NO2_sérülés | SO2_sérülé | HX_sérülés |
| 1 % lethality dose | 138 | 34 | 87 |
| 10 % lethality dose | 117 | 0 | 72 |
| 100 % lethality dose | 47 | 0 | 14 |
| Concentration contours distance [m] | | | |
| 1% lethality concentration at 1.5m | 190 | 70 | 235 |
| Other information | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | |
| Last calculation | 2024. 01. 31. 9:00:32 | | |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

8. MVR épülete - Tócsatűz

8 Model: Pool Fire

version: v2024.01.79c21b6 (2024. 01. 16.)

Reference: Yellow Book (CPR-14E), 3rd edition 1997, Paragraph 6.5.4~Rew, P.J. & Hulbert, W.G. (1997) Modelling of Thermal radiation from external hydrocarbon poolfires, in Trans IChemE, Vol.75 part B,~Rew, P.J. & Hulbert, W.G. (1996), Development of a pool fire thermal radiation model', HSE Contract research report no. 96, ~ Damage: Green Book 1st edition 1992, chapter 1 (Heat radiation); pages 11-36~

| Parameters | | |
|--|------------------------------|------------------------------|
| Inputs | Izopropanol | Etanol |
| Process Conditions | | |
| Chemical name | ISOPROPANOL (DIPPR) | ETHANOL (DIPPR) |
| Calculation Method | | |
| Type of pool fire calculation | Two zone model Rew & Hulbert | Two zone model Rew & Hulbert |
| Type of pool fire source | Instantaneous | Instantaneous |
| Fraction combustion heat radiated (-) | 0,35 | |
| Soot definition | Calculate/Default | Calculate/Default |
| Source Definition | | |
| Total mass released (kg) | 60 | 418,87 |
| Temperature of the pool (°C) | 11 | 11 |
| Process Dimensions | | |
| Type of pool shape (pool fire) | Circular | Circular |
| Max. pool fire surface area (m2) | 1500 | 1500 |
| Height of the confined pool above ground level (m) | 0 | 0 |
| Include shielding at bottomsides flame | No | No |
| Meteo Definition | | |
| Wind speed at 10 m height (m/s) | 1 | 1 |
| Predefined wind direction | W | W |
| Environment | | |
| Ambient temperature (°C) | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 |
| Ambient relative humidity (%) | 83 | 83 |
| Amount of CO2 in atmosphere (-) | 0,0003 | 0,0003 |
| Vulnerability | | |
| Maximum heat exposure duration (s) | 20 | 20 |
| Take protective effects of clothing into account | No | No |
| Heat radiation lethal damage Probit A ((sec*(W/m2)^n)) | -36,38 | -36,38 |
| Heat radiation lethal damage Probit B | 2,56 | 2,56 |
| Heat radiation damage Probit N | 1,3333 | 1,3333 |
| Accuracy | | |
| Grid resolution | Low | Low |
| Reporting | | |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 |
| Reporting/receiver distance (Xd) (m) | 200 | 200 |

| Results | Izopropanol | Etanol |
|---|-------------|------------------|
| Fire Results | | |
| Equivalent diameter of fire (m) | 4,3829 | 11,56 |
| Max. diameter top flame (m) | 4,3829 | 11,56 |
| Flame footprint dimensions D,-D,DMW,MW | 5;-2;1;4 | 7;-6;1;12 |
| Calculated pool fire surface area (m2) | 15,088 | 104,96 |
| Combustion rate of the chemical (kg/s) | 0,4601 | 2,0992 |
| Duration of the fire (s) | 130,41 | 199,54 |
| Surface emissive power (clear flame) (kW/m2) | 49,72 | 130 |
| Surface emissive power (sooted flame) (kW/m2) | 25,944 | 130 |
| Soot fraction used (-) | 0,8 | 0 |
| Flame tilt (deg) | 28,533 | 20,845 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | |
|--|------------|------------|
| Flame temperature (°C) | 696,32 | 958,22 |
| Length of the flame (m) | 6,0827 | 4,2616 |
| Height of clear fraction Flame (m) | 1,0347 | 0,60195 |
| Weight ratio of HCl/chemical (%) | 0 | 0 |
| Weight ratio of NO2/chemical (%) | 0 | 0 |
| Weight ratio of SO2/chemical (%) | 0 | 0 |
| Weight ratio of CO2/chemical (%) | 219,74 | 191,09 |
| Weight ratio of H2O/chemical (%) | 119,96 | 117,35 |
| (Max) Heat radiation level at Xd (kW/m2) | 0,003401 | 0,032447 |
| Atmospheric transmissivity at Xd (%) | 59,545 | 65,955 |
| (Max) Viewfactor at Xd (-) | 0,00019072 | 0,00037817 |
| Heat radiation dose at Xd (s*(kW/m2) ^4/3) | 0,010229 | 0,20698 |
| Percentage first degree burns at Xd (%) | 0 | 0 |
| Percentage second degree burns at Xd (%) | 0 | 0 |
| Percentage lethal burns at Xd (%) | 0 | 0 |
| Distance to clothing burning dose (m) | 3,3308 | 10,796 |

| Contour maximum distances | | |
|--------------------------------------|-------------|--------|
| Heat radiation contours distance [m] | Izopropanol | Etanol |
| 4,1 kW/m2 heat radiation contour | 9 | 23 |
| 9,8 kW/m2 heat radiation contour | 6 | 17 |
| 10 kW/m2 heat radiation contour | 6 | 16 |
| 12,5 kW/m2 heat radiation contour | 5 | 15 |

| Lethality contours distance [m] | Izopropanol | Etanol |
|---------------------------------|-------------|--------|
| 1 % lethality contour | 6 | 17 |
| 10 % lethality contour | 5 | 15 |
| 100 % lethality contour | 0 | 10 |

| Other information | |
|-------------------|-----------------------------|
| Main program | EFFECTS 12.0.1.22111 Legacy |
| Last calculation | 2024. 01. 31. 9:02:04 |

9. Gyártócsarnok – HF halálozás

9 Model: Neutral Gas - Toxic Dose

version: v2024.01.3c37c12 (2024. 01. 22.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Chapter 4

| Parameters | | | | | |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Inputs | D3 | F1 | B3 | F3 | D1 |
| Process Conditions | | | | | |
| Chemical name | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) | HYDROGEN FLUORIDE (DIPPR) |
| Source Definition | | | | | |
| Type of neutral gas release | Instantaneous | Instantaneous | Instantaneous | Instantaneous | Instantaneous |
| Total mass released (kg) | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 |
| Length source in wind (x) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Width source in crosswind (y) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Height source in vertical (z) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Process Dimensions | | | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 | 2 | 2 |
| Meteo Definition | | | | | |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| | | | | | |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Meteorological data | Pasquill | Pasquill | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | D (Neutral) | F (Very Stable) | B (Unstable) | F (Very Stable) | D (Neutral) |
| Wind speed at 10 m height (m/s) | 3 | 1 | 3 | 3 | 1 |
| Predefined wind direction | W | W | W | W | W |
| Environment | | | | | |
| Ambient temperature (°C) | 11 | 11 | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 | 1,0151 | 1,0151 |
| North/South latitude of the location (deg) | 51 | 51 | 51 | 51 | 51 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | | | |
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No | No | No |
| Accuracy | | | | | |
| Grid resolution | Low | Low | Low | Low | Low |
| Reporting | | | | | |
| Reporting/receiver distance (Xd) (m) | 500 | 500 | 500 | 500 | 500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No | No | No |
| Use dynamic concentration presentation | No | No | No | No | No |
| Results | D3 | F1 | B3 | F3 | D1 |
| Meteo Definition | | | | | |
| Mixing height used (m) | 500 | 50 | 1500 | 69 | 207 |
| Concentration Results | | | | | |
| Threshold concentration used (mg/m3) | 166,51 | 166,51 | 166,51 | 166,51 | 166,51 |
| Toxic Results | | | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 41,266 | 1650 | 4,2479 | 550,74 | 123,64 |
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 784,69 | 784,69 | 784,69 | 784,69 | 784,69 |
| Contour maximum distances | | | | | |
| Lethality contours distance [m] | D3 | F1 | B3 | F3 | D1 |
| 1 % lethality dose | 37 | 123 | 18 | 76 | 56 |
| 10 % lethality dose | 23 | 78 | 11 | 45 | 37 |
| 100 % lethality dose | 0 | 0 | 0 | 0 | 0 |
| Concentration contours distance [m] | | | | | |
| 1% lethality concentration at 1.5m | 202 | 385 | 117 | 385 | 202 |
| Other information | | | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | | | |
| Last calculation | 2024. 01. 31. 9:03:05 | | | | |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

10. Gyártócsarnok – HF sérülés

10 Model: Neutral Gas - Toxic Dose

version: v2024.01.3c37c12 (2024. 01. 22.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Chapter 4

| Parameters | | | | | |
|---|---|---|---|---|---|
| Inputs | F1 sérülés | F3 sérülés | D3 sérülés | B3 sérülés | D1 sérülés |
| Process Conditions | | | | | |
| Chemical name | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) | HYDROGEN FLUORIDE_sérülés (DIPPR, edited) |
| Source Definition | | | | | |
| Type of neutral gas release | Instantaneous | Instantaneous | Instantaneous | Instantaneous | Instantaneous |
| Total mass released (kg) | 3,5 | 3,5 | 3,5 | 3,5 | 3,5 |
| Length source in wind (x) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Width source in crosswind (y) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Height source in vertical (z) direction (m) | 0 | 0 | 0 | 0 | 0 |
| Process Dimensions | | | | | |
| Height of release (Z-coordinate) (m) | 2 | 2 | 2 | 2 | 2 |
| Meteo Definition | | | | | |
| Meteorological data | Pasquill | Pasquill | Pasquill | Pasquill | Pasquill |
| Pasquill stability class | F (Very Stable) | F (Very Stable) | D (Neutral) | B (Unstable) | D (Neutral) |
| Wind speed at 10 m height (m/s) | 1 | 3 | 3 | 3 | 1 |
| Predefined wind direction | W | W | W | W | W |
| Environment | | | | | |
| Ambient temperature (°C) | 11 | 11 | 11 | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 | 1,0151 | 1,0151 | 1,0151 |
| North/South latitude of the location (deg) | 51 | 51 | 51 | 51 | 51 |
| Roughness length description | Cultivated land | Cultivated land | Cultivated land | Cultivated land | Cultivated land |
| Vulnerability | | | | | |
| Toxic exposure duration based on | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering | Time limit until sheltering |
| Start of exposure (after moment of release) (s) | 0 | 0 | 0 | 0 | 0 |
| Max. duration until sheltering (s) | 1800 | 1800 | 1800 | 1800 | 1800 |
| Perform toxic indoors calculation | No | No | No | No | No |
| Accuracy | | | | | |
| Grid resolution | Low | Low | Low | Low | Low |
| Reporting | | | | | |
| Reporting/receiver distance (Xd) (m) | 500 | 500 | 500 | 500 | 500 |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Use defined dose contour | No | No | No | No | No |
| Use dynamic concentration presentation | No | No | No | No | No |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| Results | F1 sérülés | F3 sérülés | D3 sérülés | B3 sérülés | D1 sérülés |
|---|--|------------|------------|------------|------------|
| Meteo Definition | | | | | |
| Mixing height used (m) | 50 | 69 | 500 | 1500 | 207 |
| Concentration Results | | | | | |
| Threshold concentration used (mg/m3) | 22,43 | 22,43 | 22,43 | 22,43 | 22,43 |
| Toxic Results | | | | | |
| Dose at (Xd, Yd, Zd) (min*(mg/m3)^n) | 1688 | 562,51 | 41,266 | 4,2479 | 123,64 |
| Lethality at (Xd, Yd, Zd) (-) | 0 | 0 | 0 | 0 | 0 |
| LC50 Human 30 min (mg/m3) | 83,442 | 83,442 | 83,442 | 83,442 | 83,442 |
| Contour maximum distances | | | | | |
| Lethality contours distance [m] | F1 sérülésF3 sérülésD3 sérülésB3 sérülésD1 sérülés | | | | |
| 1 % lethality dose | 396 | 262 | 112 | 55 | 165 |
| 10 % lethality dose | 284 | 186 | 82 | 40 | 121 |
| 100 % lethality dose | 41 | 15 | 10 | 7 | 22 |
| Concentration contours distance [m] | | | | | |
| 1% lethality concentration at 1.5m | 860 | 860 | 435 | 247 | 435 |
| Other information | | | | | |
| Main program | EFFECTS 12.0.1.22111 Legacy | | | | |
| Last calculation | 2024. 01. 31. 9:04:12 | | | | |

11. Gyártócsarnok - Tócsatűz

11 Model: Pool Fire

version: v2024.01.79c21b6 (2024. 01. 17.)
Reference: Yellow Book (CPR-14E), 3rd edition 1997, Paragraph 6.5.4~Rew, P.J. & Hulbert, W.G. (1997) Modelling of Thermal radiation from external hydrocarbon poolfires, in Trans IChemE, Vol.75 part B,~Rew, P.J. & Hulbert, W.G. (1996), Development of a pool fire thermal radiation model', HSE Contract research report no. 96, ~ Damage: Green Book 1st edition 1992, chapter 1 (Heat radiation); pages 11-36~

| | | |
|--|------------------------------|------------------------------|
| Parameters | | |
| Inputs | Etanol | Izopropanol |
| Process Conditions | | |
| Chemical name | ETHANOL (DIPPR) | ISOPROPANOL (DIPPR) |
| Calculation Method | | |
| Type of pool fire calculation | Two zone model Rew & Hulbert | Two zone model Rew & Hulbert |
| Type of pool fire source | Instantaneous | Instantaneous |
| Soot definition | Calculate/Default | Calculate/Default |
| Source Definition | | |
| Total mass released (kg) | 211,91 | 41 |
| Temperature of the pool (°C) | 11 | 11 |
| Process Dimensions | | |
| Type of pool shape (pool fire) | Circular | Circular |
| Max. pool fire surface area (m2) | 1500 | 1500 |
| Height of the confined pool above ground level (m) | 0 | 0 |
| Include shielding at bottomsides flame | No | No |
| Meteo Definition | | |
| Wind speed at 10 m height (m/s) | 1 | 1 |
| Predefined wind direction | W | W |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| Environment | | |
|--|------------|-------------------|
| Ambient temperature (°C) | 11 | 11 |
| Ambient pressure (bar) | 1,0151 | 1,0151 |
| Ambient relative humidity (%) | 83 | 83 |
| Amount of CO2 in atmosphere (-) | 0,0003 | 0,0003 |
| Vulnerability | | |
| Maximum heat exposure duration (s) | 20 | 20 |
| Take protective effects of clothing into account | No | No |
| Heat radiation lethal damage Probit A ((sec*(W/m2)^n)) | -36,38 | -36,38 |
| Heat radiation lethal damage Probit B | 2,56 | 2,56 |
| Heat radiation damage Probit N | 1,3333 | 1,3333 |
| Accuracy | | |
| Grid resolution | Low | Low |
| Reporting | | |
| Reporting/receiver height (Zd) (m) | 1,5 | 1,5 |
| Reporting/receiver distance (Xd) (m) | 200 | 200 |
| Results | Etanol | Izopropanol |
| Fire Results | | |
| Equivalent diameter of fire (m) | 8,2224 | 3,6231 |
| Max. diameter top flame (m) | 8,2224 | 3,6231 |
| Flame footprint dimensions D,-D,DMW,MW | 5;-4;1;8 | 4;-2;1;4 |
| Calculated pool fire surface area (m2) | 53,099 | 10,31 |
| Combustion rate of the chemical (kg/s) | 1,062 | 0,3144 |
| Duration of the fire (s) | 199,54 | 130,41 |
| Surface emissive power (clear flame) (kW/m2) | 130 | 47,323 |
| Surface emissive power (sooted flame) (kW/m2) | 130 | 25,465 |
| Soot fraction used (-) | 0 | 0,8 |
| Flame tilt (deg) | 23,414 | 30,152 |
| Flame temperature (°C) | 958,22 | 684,5 |
| Length of the flame (m) | 3,0312 | 5,3288 |
| Height of clear fraction Flame (m) | 0,47741 | 0,96335 |
| Weight ratio of HCl/chemical (%) | 0 | 0 |
| Weight ratio of NO2/chemical (%) | 0 | 0 |
| Weight ratio of SO2/chemical (%) | 0 | 0 |
| Weight ratio of CO2/chemical (%) | 191,09 | 219,74 |
| Weight ratio of H2O/chemical (%) | 117,35 | 119,96 |
| (Max) Heat radiation level at Xd (kW/m2) | 0,015946 | 0,0023612 |
| Atmospheric transmissivity at Xd (%) | 65,887 | 59,27 |
| (Max) Viewfactor at Xd (-) | 0,00018607 | 0,00013559 |
| Heat radiation dose at Xd (s*(kW/m2)^4/3) | 0,080275 | 0,0062884 |
| Percentage first degree burns at Xd (%) | 0 | 0 |
| Percentage second degree burns at Xd (%) | 0 | 0 |
| Percentage lethal burns at Xd (%) | 0 | 0 |
| Distance to clothing burning dose (m) | 7,7502 | 2,7881 |
| Contour maximum distances | | |
| Heat radiation contours distance [m] | Etanol | Izopropanol |
| 4,1 kW/m2 heat radiation contour | 16 | 8 |
| 9,8 kW/m2 heat radiation contour | 12 | 5 |
| 10 kW/m2 heat radiation contour | 12 | 5 |
| 12,5 kW/m2 heat radiation contour | 11 | 5 |
| Lethality contours distance [m] | Etanol | Izopropanol |
| 1 % lethality contour | 12 | 5 |
| 10 % lethality contour | 11 | 5 |
| 100 % lethality contour | 7 | 0 |

5. melléklet: Mennyiségi következményelemzés – a szoftveres modellezés eredményei (QRA mellékletek)

| Other information | |
|-------------------|-----------------------------|
| Main program | EFFECTS 12.0.1.22111 Legacy |
| Last calculation | 2024. 01. 31. 9:05:30 |
| | |