§ 420.67 Separation distance requirements for handling incompatible energetic liquids that are co-located.

(a) Separation of energetic liquids and determination of distances. Where incompatible energetic liquids are co-located in a launch or reentry vehicle tank or other vessel, a launch site operator must separate each explosive hazard facility from each other explosive hazard facility, each public area, and each public traffic route in accordance with the minimum separation distance determined under this section for each explosive hazard facility.

(b) Quantity. For each explosive hazard facility, a launch site operator must determine the total quantity of all energetic liquids as follows:

(1) The quantity of energetic liquid in a launch or reentry vehicle tank is the net weight in pounds of the energetic liquid. The determination of quantity must include any energetic liquid in associated piping to any point where positive means exist for:

(i) Interrupting the flow through the pipe; or

(ii) Interrupting a reaction in the pipe in the event of a mishap.

(2) A launch site operator must convert each energetic liquid’s quantity from gallons to pounds using the conversion factors provided by table E–6 of appendix E of this part and the following equation:

\[ \text{Pounds of energetic liquid} = \text{gallons} \times \text{density of energetic liquid (pounds per gallon)}. \]

(c) Determination of separation distances for incompatible energetic liquids. A launch site operator must determine separation distances for incompatible energetic liquids as follows:
(1) A launch site operator must use the formulas provided in table E–5 of appendix E of this part, to determine the explosive equivalent in pounds of the combined incompatible energetic liquids; and

(2) A launch site operator must then use the explosive equivalent in pounds to determine the minimum separation distance between each explosive hazard facility and all other explosive hazard facilities and each public area and public traffic route as required by tables E–1, E–2 and E–3 of appendix E of this part. Where two explosive hazard facilities contain different quantities, the launch site operator must use the quantity of liquid propellant requiring the greatest separation distance to determine the minimum separation distance between the two explosive hazard facilities.

(d) Separation distance by weight and table. For each explosive hazard facility, a launch site operator must:

(1) For an explosive equivalent weight from one pound through and including 450 pounds, determine the distance to any public area and public traffic route following table E–1 of appendix E of this part;

(2) For explosive equivalent weight greater than 450 pounds, determine the distance to any public area and public traffic route following table E–2 of appendix E of this part;

(3) Separate each public area containing any member of the public in the open by a distance equal to $-1133.9 + [389 \times \ln(NEW)]$, where the NEW is greater than 450 pounds and less than 501,500 pounds;

(4) Separate each explosive hazard facility from all other explosive hazard facilities of a single customer using the intraline distance provided by table E–3 of appendix E of this part; and

(5) For explosive hazard facilities used by different customers, use the greater public area distance to separate the facilities from each other.