

DISPERSANT AIRCRAFT CAPABILITY FORM

PLATFORM
EMBRAER
EMB 110
Bandeirante

Operator: -----
OSRO: Oil Spill Response, Ltd



Photo from Oil Spill Response, Ltd. (OSRL)

DATA SOURCE LEGEND

- 1. (Black):** Indicates the data are based on documented field trials or is a fixed design value
- 2. (Blue):** Indicates the data are based on limited field observations or operator's stated practice or stated value (little or no documentation)
- 3. (Red):** Indicates the data are based on reasonable calculations or performance of comparable systems

| | | Unit | U.S. Regulatory Calculation Values | Data Source 1-2-3 | Range | Reference(s) |
|---------------------|---|---------------|------------------------------------|-------------------|-------------------------------------|---|
| AIRCRAFT PARAMETERS | | | | | | |
| 1 | Swath Width | feet | 60 | 3 | 50-80 | Estimated value from comparable aircraft |
| | a. Application (gallons per acre) | gpa | 5 | 3 | 1-10 | Estimated value from comparable spray systems |
| | b. Altitude | feet | 50 | 3 | 50-100 | Estimated from comparable aircraft |
| | c. Application Speed | knots | 120 | 2 | 120-150 | See Comments* |
| | d. Pump Rate (gallons per minute) | gpm | ----- | 3 | 40-300 | Estimated from typical spray systems |
| | e. Boom Pressure (pounds/square inch) | psi | ----- | 3 | 15-45 | Estimated from typical spray systems |
| 2 | Transit Speed at Altitude From Base to Staging Airport | knots feet | 200 >10,000 | 3 | 200-220 >10,000 | Embraer specifications http://planecrashinfo.com |

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|----------------------------|---|---------------|----------------|------|--------------------|---|
| 3 | Transit Speed at Altitude Staging Airport to/from spill | knots feet | 200 <10,000 | 3 | 200-220 <10,000 | Embraer specifications http://planecrashinfo.com |
| 4 | Dispersant Spraying Reposition Speed | knots | 160 | 3 | 160 | Estimated from other systems |
| 5 | Time to Fully Load Dispersant Tank | min | 15 | 3 | 15-60 | Estimated from Embraer specifications |
| 6 | Time to Fully Load Fuel Tanks | min | 10 | 3 | 10-60 | Estimated from Embraer specifications |
| 7 | Load Dispersant & Fuel simultaneously (Yes/No) | ---- | Yes | 3 | Yes | Estimated. See Other Comments below 5* & 6* |
| 8 | Time to Make U-turn (Turn 180 degrees) | min | 1.0 | 3 | 1.0-2.0 | Estimated from comparable aircraft |
| 9* | Dispersant Payload Maximum | gal | 440 | 2 | 440 | See Comments* |
| 10 | Fuel with maximum dispersant payload | lbs | 2995 | 3 | 2995 | Embraer specification www.skyquestinternational.com |
| 11 | Approach Distance for spraying | nm | 1.0 | 3 | 1.0-2.0 | Estimated values |
| 12 | Departure Distance for spraying | nm | 1.0 | 3 | 1.0-1.5 | Estimated values |
| 13 | Taxi Time Take-Off | min | 10 | 3 | 10-30 | Estimate from similar aircraft |
| 14 | Taxi Time Landing | min | 10 | 3 | 10-30 | Estimate from similar aircraft |
| 15 | On-site Check-In/Safety Time | min | 10 | 2 | 5-15 | Exercise observation |
| CASCADE PARAMETERS* | | | | | | |
| 16 | Take-off with Maximum Payload and Maximum Take-off Weight (assume no wind and VFR fuel reserve) | | | | | |
| | a. Maximum Flight Time | hours | 3.9 | 3 | 3.9 | Estimated from Embraer specifications |
| | b. Maximum Flight Range | nm | 780 | 2 | 780-878 | See Comments* |
| | c. Optimal Altitude | feet | ---- | ---- | ---- | ---- |
| | d. True Air Speed | knots | 200 | 2 | 200-225 | OSRL operator |
| | e. Fuel Consumption | lbs/hour | ---- | ---- | ---- | ---- |
| 17 | Take-Off with Maximum Fuel and No Payload (assume no wind and VFR fuel reserve) | | | | | |
| | a. Maximum Flight Time | hours | 5.3 | 3 | 5.3 | Estimate from Embraer specifications |
| | b. Maximum Flight Range | nm | 1,060 | 3 | 1,060 | http://planecrashinfo.com |
| | c. Optimal Altitude | feet | ---- | ---- | ---- | ---- |
| | d. True Air Speed | knots | 200 | 2 | 200-225 | OSRL operator |
| | e. Fuel Consumption | lbs/hour | ---- | ---- | ---- | ---- |
| 18 | Staging area briefing | min | 45 | 3 | 30-60 | Exercise observations |

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|--------------------------------|--|------|---------------|----------|---------------|---------------------------------------|
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| AIRPORT PARAMETERS | | | | | | |
| 19 | Runway length - Minimum (For take-off at maximum gross weight assuming sea level, 90° F, no wind using a balanced field concept, i.e., go, no go speed) | feet | 5,000 | 3 | 5,000 | Estimate from similar aircraft |
| 20 | Runway weight restrictions for maximum aircraft weight | lbs | 12,500 | 3 | 12,500 | Embraer specifications |
| | | | | | | |
| OTHER COMMENTS | | | | | | |
| 5*-6* | The time to load dispersants and fuel are stand alone times independent of each other. If item 7 indicates that fuel and dispersants can be loaded simultaneously, then the longer of fuel or dispersant load time is used in the capability calculations. If item 7 indicates fuel and dispersants can NOT be loaded simultaneously, then the times are added together to calculate the aircrafts capability. To load simultaneously depends upon the airport, aircraft, and support crew. The loading times depend upon the loading system i.e., 5000 tank truck, 55 gallon drums or other means and the pumping system used. The time shown in items 5 and 6 is for loading from a tank truck which is standing by ready to commence loading when the aircraft comes to a stop in the loading area, i.e. the fastest loading time possible. | | | | | |
| * | Cascade Parameters: The aircraft's calculated capability when cascading uses the same fuel loading and taxi times for dispersant operations as listed in items 6, 13 and 14. | | | | | |
| 1d* & 9* & 16b* | IOSC-2005 paper "Case Study of Spill Responses Undertaken by and Practical Issues of Implementing a Tier 2 Aerial Dispersant and Surveillance Service in West and Central Africa" Simon Dewhurst, The Global Alliance, Oil Spill Response Ltd. Payload, endurance and range depend upon the weight of the dispersant per gallon. The calculations provided are for the heaviest dispersant, Corexit 9527, weighing 8.5 lbs/gallon. | | | | | |