9600 Useful Formulas

The tables that follow contain some of the most commonly used formulas and conversions when responding to oil spills or chemical releases. Additional sources include *Handbook of Chemistry and Physics* and *Pocket Reference* (by Thomas Glover).

9610 Estimating Spill Sizes

9610.1 Sheens

You've just boomed off a diesel spill that measures approximately 300 yards by 200 yards. The spill is bright rainbow sheen. Use the following calculation to estimate the amount spilled.

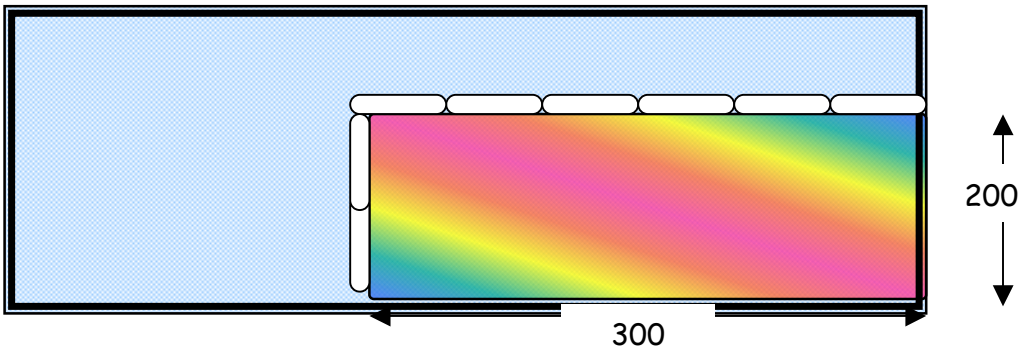

Table 1: Estimating Oil Spill Amount

Spill Thickness Conversions

- Silvery Sheen .0000315 Gals/Sq Yard
- First Colors .0000630 Gals/ Sq Yard
- Bright Rainbow .000126 Gals/ Sq Yard
- Dull Colors .000378 Gals/ Sq Yard
- Dark Colors .001134 Gals/ Sq Yard

Multiply (spill thickness) x (length in yards) x (width in yards)

.000126 Gals/ Sq Yards x 300 yards x 200 yards = **7.56 gallons spilled**

9610.2 Film & Emulsions

You have just boomed off a spill that is 20 yards wide by 50 yards long. You have a 1/4" amber colored diesel film. This conversion assumes even coating of the spill across the surface of the water and should only be used as estimation.

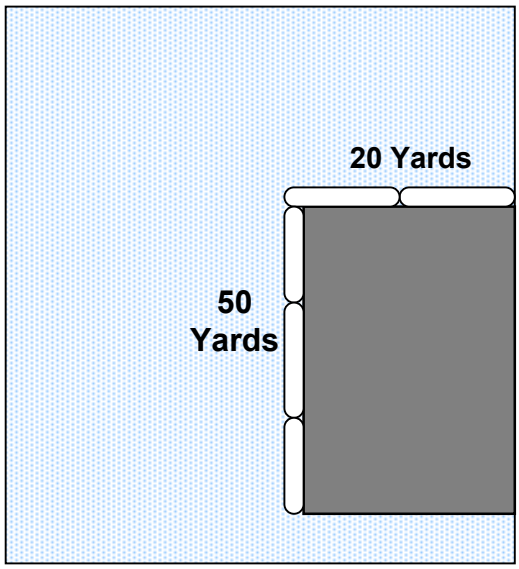

Table 2: Estimating Oil Spill Amount

Cubic Inches to Gallons	.004329
Yard to inches	36

Multiply (spill thickness) x (length in inches) x (width in inches)

.25" x 50 yards x 20 yards

.25" x 1800 cu" x 720 cu" = 324,000 cu"

324,000 cu" x .004329 = **1,402 gallons spilled**

9620 Temperature Conversions

Temperature				
Celsius	Fahrenheit		Celsius	Fahrenheit
0	32		110	230
1	34		115	239
5	41		120	248
10	50		125	257
15	59		130	266
20	68		135	275
25	77		140	284
30	86		145	293
35	95		150	302
40	104		155	311
45	113		160	320
50	122		165	329
55	131		170	338
60	140		175	347
65	149		180	356
70	158		185	365
75	167		190	374
80	176		195	383
85	185		200	392
90	194		205	401
95	203		210	410
100	212		215	419
105	221			

Table 3: Temperature Conversions

9630 Chemistry Conversions

9630.1 DOT Hazard Classes

http://hazmat.dot.gov/gydebook.htm

9630.2 Specific Gravity

Water = 1

>1 = Sink <1 = Float

9630.3 Vapor Density

Air = 1

>1 = Sink <1 = Rise

9630.4 pH

>7 = Base <7 = Acid