

2007 Formula Hybrid Fuel allocation:

Section 5 of the Formula Hybrid rules state that “the amount of fuel allotted to each team will be 85% of the organizers best estimate of what an average FSAE car would consume running the same events”.

The average fuel usage for the 2006 FSAE endurance event was 4.596 liters (1.214 Gals). Average endurance duration was 27 minutes. Therefore average fuel consumption for the 2006 endurance event was 0.1702 liters/min.

(See: <http://www.sae.org/students/fsae2006results.xls>)

Average times for the 2006 FSAE autocross were just under one minute for each of four laps, which at 0.1702 liters/min. = 0.6808 liters.

The engine run time during the acceleration event, (including running on the starting line), is approximately 10 seconds/run. We assume that the fuel consumption is higher than the endurance average, so we will use 0.4 liters/min. Four runs would then equal 0.2667 liters.

So an average Formula SAE car would use a total of 5.544 liters for an entire FH competition (that is, FSAE without the skidpad). We allow 85% of that, which is 4.712 liters.

Therefore, each team will receive 4.712 liters of fuel, minus their accumulator capacity.

Note: Prior to the acceleration event, the fuel tank will be drained, filled with the allocated fuel and then sealed. Fuel used for the brake test will not be counted against the total allocation.

Some typical fuel deduction calculations:

Per section 5 of the Formula Hybrid rules, the fuel allocation to each team will be reduced by the equivalent energy content of the vehicles accumulators. It is assumed that each team will start the first dynamic event with fully charged accumulators. These may be charged from any source available to the team.

(See: <http://www.formula-hybrid.org/accumulator-equivalency.pdf>)

Maxwell MC2600: 2600 Farads -- 2.7 VDC -- 2.606 Wh

Energy capacity = 0.00108 liters of gasoline / unit

Therefore the deduction for 100 Maxwell MC2600 = 0.108 liters of Gasoline.

Dewalt DC9360: 36 V. -- 2.3 Ah -- 66.24 Wh

Energy capacity = 0.0274 liters of gasoline / unit

Therefore the deduction for 50 Dewalt DC9360 = 1.372 liters of gasoline