MOVES3 : **CHEAT SHEET (Onroad)**

Regulatory Class

ID	reClassName	regClassDesc
10	MC	Motorcycles
20	LDV	Light Duty Vehicles
30	LDT	Light Duty Trucks
41	LHD2b3	Class 2b and 3 Trucks (8,500 lbs < GVWR ≤ 14,000 lbs)
42	LHD45	Class 4 and 5 Trucks (14,000 lbs < GVWR ≤ 19,500 lbs)
46	MHD67	Class 6 and 7 Trucks (19,500 lbs < GVWR ≤ 33,000 lbs)
47	HHD8	Class 8a and 8b Trucks (GVWR > 33,000 lbs)
48	Urban Bus	Urban Bus (see CFR Sec 86.091_2)
49	Gliders	Glider Vehicles (see EPA-420-F-15-904)

Activity Type

ID	Activity Type
1	Distance traveled
2	Source Hours
3	Extended Idle Hours
4	Source Hours Operating
5	Source Hours Parked
6	Population
7	Starts
13	Hotelling Diesel Aux
14	Hotelling Battery or AC
15	Hotelling All Engines Off

Emission Process

ID	Process Name
1	Running Exhaust
2	Start Exhaust
9	Brakewear
10	Tirewear
11	Evap Permeation
12	Evap Fuel Vapor Venting
13	Evap Fuel Leaks
15	Crankcase Running Exhaust
16	Crankcase Start Exhaust
17	Crankcase Extended Idle Exhaust
18	Refueling Displacement Vapor Loss
19	Refueling Spillage Loss
90	Extended Idle Exhaust
91	Auxiliary Power Exhaust

Source Type

ID	HPMS Type	sourceTypeName
11	10	Motorcycle
21	25	Passenger Car
31	25	Passenger Truck
32	25	Light Commercial Truck
41	40	Other Buses
42	40	Transit Bus
43	40	School Bus
51	50	Refuse Truck
52	50	Single Unit Short-haul Truck
53	50	Single Unit Long-haul Truck
54	50	Motor Home
61	60	Combination Short-haul Truck
62	60	Combination Long-haul Truck

Fuel Type

ID	fuelType
1	Gasoline
2	Diesel
3	CNG
4	LPG
5	E85
9	Electricity

Road Type

ID	Road Type
1	Off-Network
2	Rural Restricted Access
3	Rural Unrestricted Access
4	Urban Restricted Access
5	Urban Unrestricted Access

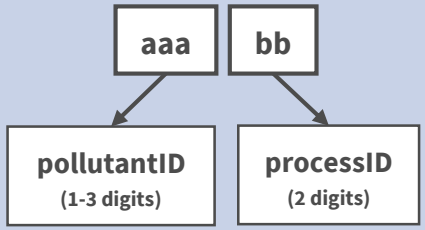
Speed Bin

ID	Speed Bin Range
1	Speed < 2.5 mph
2	2.5 mph ≤ Speed < 7.5 mph
3	7.5 mph ≤ Speed < 12.5 mph
4	12.5 mph ≤ Speed < 17.5 mph
5	17.5 mph ≤ Speed < 22.5 mph
6	22.5 mph ≤ Speed < 27.5 mph
7	27.5 mph ≤ Speed < 32.5 mph
8	32.5 mph ≤ Speed < 37.5 mph
9	37.5 mph ≤ Speed < 42.5 mph
10	42.5 mph ≤ Speed < 47.5 mph
11	47.5 mph ≤ Speed < 52.5 mph
12	52.5 mph ≤ Speed < 57.5 mph
13	57.5 mph ≤ Speed < 62.5 mph
14	62.5 mph ≤ Speed < 67.5 mph
15	67.5 mph ≤ Speed < 72.5 mph
16	72.5 mph ≤ Speed

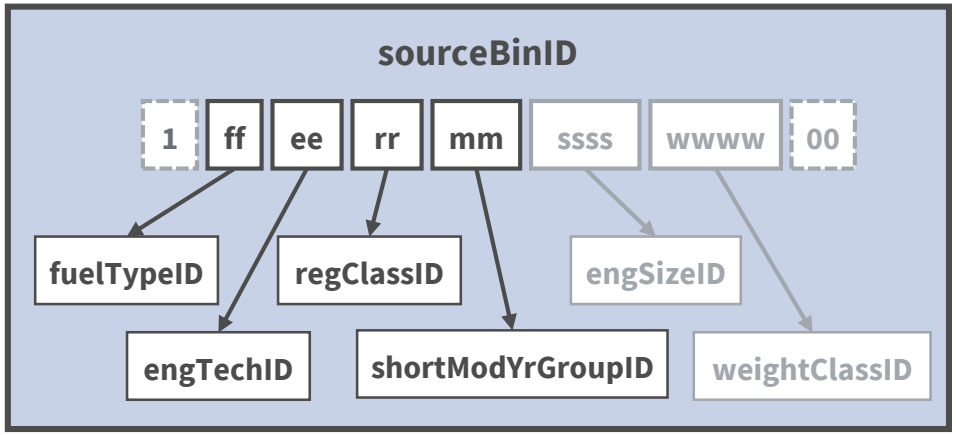
Day ID

ID	dayName
2	Weekend
5	Weekday

polProcessID



sourceBinID



MOVES3
Motor Vehicle Emission Simulator

11/03/2020

MOVES3 : CHEAT SHEET (Onroad)

Operating Modes: Running

ID	Name	VSP Range	Speed Range
0	Braking		
1	Idling		
11	Low Speed Coasting	VSP < 0	1 mph ≤ Speed < 25 mph
12	Cruise / Acceleration	0 ≤ VSP < 3	1 mph ≤ Speed < 25 mph
13	Cruise / Acceleration	3 ≤ VSP < 6	1 mph ≤ Speed < 25 mph
14	Cruise / Acceleration	6 ≤ VSP < 9	1 mph ≤ Speed < 25 mph
15	Cruise / Acceleration	9 ≤ VSP < 12	1 mph ≤ Speed < 25 mph
16	Cruise / Acceleration	12 ≤ VSP	1 mph ≤ Speed < 25 mph
21	Moderate Speed Coasting	VSP < 0	25 mph ≤ Speed < 50 mph
22	Cruise / Acceleration	0 ≤ VSP < 3	25 mph ≤ Speed < 50 mph
23	Cruise / Acceleration	3 ≤ VSP < 6	25 mph ≤ Speed < 50 mph
24	Cruise / Acceleration	6 ≤ VSP < 9	25 mph ≤ Speed < 50 mph
25	Cruise / Acceleration	9 ≤ VSP < 12	25 mph ≤ Speed < 50 mph
26	Cruise / Acceleration	12 ≤ VSP	25 mph ≤ Speed < 50 mph
27	Cruise / Acceleration	12 ≤ VSP < 18	25 mph ≤ Speed < 50 mph
28	Cruise / Acceleration	18 ≤ VSP < 24	25 mph ≤ Speed < 50 mph
29	Cruise / Acceleration	24 ≤ VSP < 30	25 mph ≤ Speed < 50 mph
30	Cruise / Acceleration	30 ≤ VSP	25 mph ≤ Speed < 50 mph
33	Cruise / Acceleration	VSP < 6	50 mph ≤ Speed
35	Cruise / Acceleration	6 ≤ VSP < 12	50 mph ≤ Speed
36	Cruise / Acceleration	12 ≤ VSP	50 mph ≤ Speed
37	Cruise / Acceleration	12 ≤ VSP < 18	50 mph ≤ Speed
38	Cruise / Acceleration	18 ≤ VSP < 24	50 mph ≤ Speed
39	Cruise / Acceleration	24 ≤ VSP < 30	50 mph ≤ Speed
40	Cruise / Acceleration	30 ≤ VSP	50 mph ≤ Speed
501	Brakewear ; stopped		

Operating Modes: Starts

ID	Soak Time Range		
101		Soak Time	< 6 minutes
102	6 minutes ≤	Soak Time	< 30 minutes
103	30 minutes ≤	Soak Time	< 60 minutes
104	60 minutes ≤	Soak Time	< 90 minutes
105	90 minutes ≤	Soak Time	< 120 minutes
106	120 minutes ≤	Soak Time	< 360 minutes
107	360 minutes ≤	Soak Time	< 720 minutes
108	720 minutes ≤	Soak Time	

Operating Modes: Hotelling

ID	Description
200	Extended Idling
201	Auxiliary Power Units Use
202	Battery Power
204	Engine off

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Pollutants

ID	pollutantname	ID	pollutantname
1	Total Gaseous Hydrocarbons	84	Pyrene particle
2	Carbon Monoxide (CO)	86	Total Organic Gases
3	Oxides of Nitrogen (NOx)	87	Volatile Organic Compounds
5	Methane (CH4)	88	NonHAPTOG
6	Nitrous Oxide (N2O)	90	Atmospheric CO2
20	Benzene	91	Total Energy Consumption
21	Ethanol	92	Petroleum Energy Consumption
23	Naphthalene particle	93	Fossil Fuel Energy Consumption
24	1,3-Butadiene	98	CO2 Equivalent
25	Formaldehyde	99	Brake Specific Fuel Consumption (BSFC)
26	Acetaldehyde	100	Primary Exhaust PM10 - Total
27	Acrolein	106	Primary PM10 - Brakewear Particulate
30	Ammonia (NH3)	107	Primary PM10 - Tirewear Particulate
31	Sulfur Dioxide (SO2)	110	Primary Exhaust PM2.5 - Total
32	Nitrogen Oxide (NO)	111	Organic Carbon
33	Nitrogen Dioxide (NO2)	112	Elemental Carbon
34	Nitrous Acid (HONO)	115	Sulfate Particulate
35	Nitrate (NO3)	116	Primary PM2.5 - Brakewear Particulate
36	Ammonium (NH4)	117	Primary PM2.5 - Tirewear Particulate
40	2,2,4-Trimethylpentane	118	Composite - NonECPM
41	Ethyl Benzene	119	H2O (aerosol)
42	Hexane	120	Primary PM2.5 - NonECNonSO4PM
43	Propionaldehyde	121	CMAQ5.0 Unspeciated (PMOTHR)
44	Styrene	122	Non-carbon Organic Matter (NCOM)
45	Toluene	130	1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin
46	Xylene	131	Octachlorodibenzo-p-dioxin
51	Chloride	132	1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin
52	Sodium	133	Octachlorodibenzofuran
53	Potassium	134	1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin
54	Magnesium	135	1,2,3,7,8-Pentachlorodibenzo-p-Dioxin
55	Calcium	136	2,3,7,8-Tetrachlorodibenzofuran
56	Titanium	137	1,2,3,4,7,8,9-Heptachlorodibenzofuran
57	Silicon	138	2,3,4,7,8-Pentachlorodibenzofuran
58	Aluminum	139	1,2,3,7,8-Pentachlorodibenzofuran
59	Iron	140	1,2,3,6,7,8-Hexachlorodibenzofuran
60	Mercury Elemental Gaseous	141	1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin
61	Mercury Divalent Gaseous	142	2,3,7,8-Tetrachlorodibenzo-p-Dioxin
62	Mercury Particulate	143	2,3,4,6,7,8-Hexachlorodibenzofuran
63	Arsenic Compounds	144	1,2,3,4,6,7,8-Heptachlorodibenzofuran
65	Chromium 6+	145	1,2,3,4,7,8-Hexachlorodibenzofuran
66	Manganese Compounds	146	1,2,3,7,8,9-Hexachlorodibenzofuran
67	Nickel Compounds	168	Dibenzo(a,h)anthracene gas
68	Dibenzo(a,h)anthracene particle	169	Fluoranthene gas
69	Fluoranthene particle	170	Acenaphthene gas
70	Acenaphthene particle	171	Acenaphthylene gas
71	Acenaphthylene particle	172	Anthracene gas
72	Anthracene particle	173	Benz(a)anthracene gas
73	Benz(a)anthracene particle	174	Benzo(a)pyrene gas
74	Benzo(a)pyrene particle	175	Benzo(b)fluoranthene gas
75	Benzo(b)fluoranthene particle	176	Benzo(g,h,i)perylene gas
76	Benzo(g,h,i)perylene particle	177	Benzo(k)fluoranthene gas
77	Benzo(k)fluoranthene particle	178	Chrysene gas
78	Chrysene particle	181	Fluorene gas
79	Non-Methane Hydrocarbons	182	Indeno(1,2,3,c,d)pyrene gas
80	Non-Methane Organic Gases	183	Phenanthrene gas
81	Fluorene particle	184	Pyrene gas
82	Indeno(1,2,3,c,d)pyrene particle	185	Naphthalene gas
83	Phenanthrene particle		