

 CALIFORNIA AIR RESOURCES BOARD	VOLVO CAR CORPORATION	Executive Order: A-018-0216-1 New Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles Page 1 of 4
---	--------------------------	---

Pursuant to the authority vested in California Air Resources Board by Health and Safety Code (HSC), Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 and 39516 and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: The following vehicles produced by the manufacturer are certified as plug-in hybrid electric vehicles pursuant to Title 13, California Code of Regulations (13 CCR) Sections 1961.1, 1961.2, 1962.2, 1976, 1978 and the incorporated test procedures. Production vehicles shall be in all material respects the same as those for which certification is granted.

TEST GROUP INFORMATION														
MODEL YEAR		TEST GROUP		VEHICLE CLASS(ES)		FUEL CATEGORY		FUEL TYPE						
2019		KVVXJ02.0P30		LDT2, LDT4, PC		PLUG-IN HYBRID ELECTRIC VEHICLE		GASOLINE						
USEFUL LIFE (miles)			VEHICLE EMISSION CATEGORY			INTERIM / INTERMEDIATE IN-USE STD								
EXH/ORVR		EVAP								FTP		SFTP		
150000		150000								LEV3 SULEV30		LEV 3 COMPOSITE		
SPECIAL FEATURES & EXHAUST EMISSION CONTROL SYSTEMS					OBD STATUS			ENGINE DISPLACEMENT (L)						
1	TWC, WR-HO2S, 2HO2S, DFI, TC, SC, CAC				FULL		*		2.0					
*	*				PARTIAL		ALL MODELS							
*	*				PARTIAL WITH FINES		*							
EVAPORATIVE & REFUELING (EVAP/ORVR) FAMILY INFORMATION														
EVAP / ORVR FAMILY		EVAPORATIVE STD CATEGORY			EVAP EMISSION STD VEHICLE CLASS			SPECIAL FEATURES						
KVVXR0142EP2		LEV 3 OPTION2			PC			*						
EMISSION CREDIT INFORMATION														
ALLOWANCE FOR TEST GROUP		NMOG+NOX FLEET AVE. CREDIT FOR EXTENDED WARRANTY		NMOG CREDIT FOR NON-PZEV ZERO-EVAP		NMOG CREDIT FOR DOR		OPTIONAL EXH. STD FOR WORK TRUCKS						
TZEV														
ALL MODELS		N		N		N		N						
NMOG AND FLEET AVERAGE INFORMATION														
NMOG RAF	CH4 RAF	FTP NMOG/NMHC RATIO	HCHO/NMHC RATIO	NMOG+NOX FLEET STD PC+LDT (0-3750 LVW) (g/mi)		NMOG+NOX FLEET STD LDT (3751 LVW-8500 GVWR) + MDPV (g/mi)		NMOG+NOX FLEET STD MDV (10,001-14,000 GVWR) (g/mi)						
*	*	1.10	*	0.072		0.083		*						

See the Attachment for Vehicle Models, Evaporative Family, Engine Displacement, Emission Control Systems, Phase-In Standards, OBD Compliance, Emission Standards and Certification Levels, and Abbreviations. (As applicable, heavy-duty vehicles (HDV) over 14,000 pounds in GVWR listed in this Executive Order are certified to the requirements in 13 CCR Section 1961.2 applicable to MDV pursuant to 13 CCR Section 1956.8(c)(3) or 13 CCR Section 1956.8(h)(5), as applicable.)



BE IT FURTHER RESOLVED:

The exhaust and evaporative emission standards and the certification emission levels for the listed vehicles are as listed on the Attachment. Compliance with the 50° Fahrenheit testing requirement may have been met based on the manufacturer's submitted compliance plan in lieu of testing. Any debit in the manufacturer's fleet average compliance requirement for NMOG+NOx or Vehicle Equivalent Credit (13 CCR Sections 1961.2(b)(1), 1961.2(b)(3), or 1961.2(c)(3), and the incorporated test procedures, as applicable), or Greenhouse Gas Emissions (13 CCR Section 1961.3, or 17 CCR Section 95663, and the incorporated test procedures, as applicable), for PC, LDT, MDPV or MDV shall be equalized as required.

BE IT FURTHER RESOLVED:

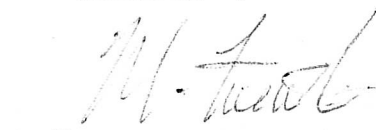
For the listed vehicle models, the manufacturer has attested to compliance with Title 13, California Code of Regulations, (13 CCR) Sections 1965 [emission control labels], 1968.2 [on-board diagnostic, full or partial compliance], 2035 et seq. [emission control warranty], 2235 [fuel tank fill pipes and openings] (gasoline and alcohol fueled vehicles only), and "High-Altitude Requirements" and "Inspection and Maintenance Emission Standards" (California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for PC, LDT and MDV).

This Executive Order hereby supersedes Executive Order A-413-0216 dated July 24, 2018.

Vehicles certified under this Executive Order shall conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 18th day of December 2018.


FOR Annette Hebert, Chief

Emissions Compliance, Automotive Regulations and Science Division



ATTACHMENT

EXHAUST AND EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS

EXHAUST EMISSION STANDARDS AND CERTIFICATION LEVELS (FTP, HWFET, 50°F, 20°F)

	FUEL TYPE	CH ₄ : methane; NMOG: non-CH ₄ organic gas; HC: hydrocarbon; NMHC: non-CH ₄ HC; CO: carbon monoxide; NO _x : oxides of nitrogen; HCHO: formaldehyde; PM: particulate matter; RAF: reactivity adjustment factor; 2DHS/3DHS [g HC/test]: 2/3 days diurnal+hot-soak; RL [g HC/mi]: running loss; ORVR [g HC/gallon dispensed]: on-board refueling vapor recovery; g: gram; mg: milligram; mi: mile; K: 1000 miles; F: degrees Fahrenheit; FTP: federal test procedure; SFTP: supplemental FTP									
		NMOG+NO _x (g/mi)		CO (g/mi)		NO _x (g/mi)		HCHO (mg/mi)		PM (g/mi)	
		CERT	STD	CERT	STD	CERT	STD	CERT	STD	CERT	STD
FTP@50K	*	*	*	*	*	*	*	*	*	*	*
FTP@UL	GASOLINE- LEV3 E10	0.012	0.030	0.57	1.0	0.009	*	*	4	0.001	0.01
50°F @4K	GASOLINE- LEV3 E10	0.013	0.060	0.42	1.0	0.009	*	*	8		
	FUEL TYPE	NMOG+NO _x (g/mi)		CO (g/mi)							
		CERT	STD	CERT	STD						
HWFET @ 50K	*	*	*	*	*						
HWFET @ UL	GASOLINE-LEV3 E10	0.005	0.030								
20°F @ 50K	GASOLINE-COLD CO LOW OCTANE							0.68		10.0	

SFTP EXHAUST EMISSION STANDARDS AND CERTIFICATION LEVELS

	FUEL TYPE		US06			SC03		COMPOSITE		
			NMOG+NO _x (g/mi)	CO (g/mi)	PM (mg/mi)	NMOG+NO _x (g/mi)	CO (g/mi)	NMOG+NO _x (g/mi)	CO (g/mi)	PM (mg/mi)
@ 4K	*	CERT	*	*		*	*			
		STD	*	*		*	*			
@ UL	GASOLINE- LEV3 E10	CERT	*	*	*	*	*	0.013	0.73	*
		STD	*	*	*	*	*	0.090	4.2	*
		BIN						0.060		

WHOLE VEHICLE EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS

EVAPORATIVE FAMILY	FUEL TYPE	WHOLE VEHICLE EVAPORATIVE TESTING						RL (g/mi) @ UL	
		3DHS (g/test) @ UL			2DHS (g/test) @ UL				
		CERT	STD	FEL	CERT	STD	FEL	CERT	STD
KVVXR0142EP2	GASOLINE- LEV3 E10 PREM	0.1972	0.300	*	0.1385	0.300	*	0.000	0.05

ORVR / FUEL ONLY / CANISTER BLEED EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS

EVAPORATIVE FAMILY	ORVR (g/gallon) @ UL			FUEL ONLY EVAP & CANISTER BLEED					
				FUEL TYPE	3DHS RIG TEST (g/test) @ UL		2DHS RIG TEST (g/test) @ UL		BLEED CANISTER TEST (g/test) @ 4K
					CERT	STD	CERT	STD	
KVVXR0142EP2	GASOLINE- TIER3 E10 PREM	0.049	0.20	*	*	*	*	*	*



CALIFORNIA
AIR RESOURCES BOARD

VOLVO CAR
CORPORATION

Executive Order: A-018-0216-1
New Passenger Cars, Light-Duty Trucks and
Medium-Duty Vehicles
Page 4 of 4

EFFECTIVE LEAK DIAMETER STANDARD AND CERTIFICATION LEVEL (INCHES)

EVAPORATIVE FAMILY	LEAK FAMILY	CERT	STD
KVVXR0142EP2	KVVXR0142EP2-001	*	0.02

*: not applicable; #: pounds; UL: useful life; PC: passenger car; LDT: light-duty truck; LDT1: LDT<6000#GVWR,0-3750#LVW; LDT2: LDT<6000#GVWR,3751-5750#LVW; LDT3: LDT 6001-8500#GVWR,3751-5750#ALVW; LDT4: LDT 6001-8500#GVWR,5751-8500#ALVW; MDV: medium-duty vehicle; MDV4: MDV 8501-10000#GVWR; MDV5: MDV 10001-14000#GVWR; MDPV: medium-duty passenger vehicle; HDV: heavy-duty vehicle; ECS: emission control system; CERT: certification; STD: standard; FEL: family emission limit; GVWR: gross vehicle weight rating; LVW: loaded vehicle weight; ALVW: adjusted LVW; LEV: low emission vehicle; ULEV: ultra LEV; SULEV: super ULEV; ZEV: zero-emission vehicle; TZE: transitional ZEV; TWC/OC: 3-way/oxidizing catalyst; ADSTWC: adsorbing TWC; HAC: HC adsorbing catalyst; WU: warm-up catalyst; NAC: NOx adsorption catalyst; SCR-U or SCRC/SCR-N or SCRC-NH3: selective catalytic reduction-urea/ammonia; NH3OC: ammonia oxidation catalyst; CTOX/PTOX: continuous/periodic trap oxidizer; DPF: diesel particulate filter (active); GPF: PM filter for spark-ignited engine; HO2S/O2S: heated/oxygen sensor; WR-HO2S or AFS: wide range/linear/heated air-fuel ratio sensor; NOXS: NOx sensor; PMS: PM sensor; RDQS: reductant quality sensor; NH3S: ammonia sensor; EGR: exhaust gas recirculation; EGRC: EGR cooler; AIR/AIRE: secondary air injection (belt driven)/(electric driven); PAIR: pulsed AIR; SFI/MFI: sequential/multiport fuel injection; DFI/IFI: direct/indirect fuel injection; TC/SC: turbo/super charger; CAC: charge air cooler; FFH: fuel fired heater; F/P/\$: full/partial/partial with fines on-board diagnostic; DOR: direct ozone reducing; HCT: hydrocarbon trap; BCAN: bleed carbon canister; prefix 2: parallel; (2) suffix: series; CNG/LNG: compressed/liquefied natural gas; LPG: liquefied petroleum gas; E85: "85%" ethanol ("15%" gasoline) fuel; E10: "10%" ethanol ("90%" gasoline) fuel; A: automatic (with lockup); M: manual transmission; SA: semi-automatic transmission; CV: continuously variable transmission; SCV: selectable continuously variable transmission; AM: automated manual transmission; AMS: automated manual-selectable transmission; OT: other transmission; AER: all-electric range; EAER: equivalent AER; PHEV: plug-in hybrid electric vehicle; NMOG + NOx Fleet Ave. Credit for Extended Warranty: N = no credits, Y = credits, S = credits for some/select models

2019 MODEL YEAR: VEHICLE MODELS INFORMATION

MODEL NUMBER	MAKE	MODEL	VEH CLASS	ENGINE (L)	TRANS TYPE	EVAPORATIVE FAMILY	EXH ECS	OBD
1	VOLVO	S60 T8 AWD	PC	2.0	SA8	KVVXR0142EP2	1	P
2	VOLVO	S90 T8 AWD	PC	2.0	SA8	KVVXR0142EP2	1	P
3	VOLVO	XC60 T8 AWD	LDT2	2.0	SA8	KVVXR0142EP2	1	P
4	VOLVO	XC90 T8 AWD	LDT4	2.0	SA8	KVVXR0142EP2	1	P

ELECTRIC RANGE AND ZEV ALLOWANCE INFORMATION

MODEL NUMBER	PHEV TYPE	UDDS AER (MILES)	UDDS EAER (MILES)	US06 AER (MILES)	HIGHWAY (MILES)		ZEV ALLOWANCE
					AER	EAER	
1	TZE	30.6	30.8	*	31.2	30.6	0.61
3	TZE	23.7	24.5	*	24.0	23.4	0.54
2	TZE	29.7	29.7	*	31.7	31.3	0.60
4	TZE	23.3	23.8	*	24.2	23.7	0.54