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ABBREVIATIONS AND SYMBOLS

CD	Conventional diesel
CD(B2)	Conventional diesel added with 2% biodiesel fuel blended
CD(B5)	Conventional diesel added with 5% biodiesel fuel blended
CB	Community biodiesel
CBU	Community biodiesel from Umong district
CBS	Community biodiesel from Sankampaeng district
CB50	50% biodiesel fuel blended with conventional diesel
CB100	Pure biodiesel fuel
DEDE	Department of Alternative Energy Development and Efficiency, Ministry of Energy
bbI	Billion barrels
CN	Cetane number
CO ₂	Carbon dioxide
CO	Carbon monoxide
THC	Total hydrocarbon
NO _x	Nitrogen oxides
SOF	Soluble organic fragment
PAHs	Polycyclic aromatic hydrocarbons
NPAHs	Nitro-polycyclic aromatic hydrocarbons
DEP	Diesel exhaust particulates

DNA	Deoxyribonucleic acid
CYP	Cytochrome P
1-NP	1-Nitropyrene
CYP450	Cytochrome P450
2-NF	2-Nitrofluoranthrene
PM	Particulate matter
PM _{2.5}	Particulate matter diameter of 2.5 micrometres
mm	Millimeter
PTFE	Polytetrafluoroethylene
HPLC	High-performance liquid chromatography
FLD	Fluorescence detector
1-NP- <i>d</i> ₉	Deuterated 1-nitropyrene
DMSO	Dimethyl-sulfoxide
SPSS	Statistical package for the social sciences
rpm	Rounds per minute
mL	Milliliter
L	Liter
cc	Cubic meter
kW	Kilowatt
Nm	Newton meter
LFE	Laminar flow element
K	Kelvin
mmHg	Millimeter of mercury

ASTM	American Society for Testing and Materials
cSt	Centi Stokes
°C	Celcius
MJ/kg	Mega joule per kilogram
nm	Nanometer
µm	Micrometer
min	Minute
CV	Coefficient variation
CRD	Completely randomized design
TBS	Thai biodiesel standards
MES	Methyl ester standards
TDS	Thai diesel standards
v/v	Volume by volume
BSFC	Brake specific fuel consumption
TE	Thermal efficiency
SO ₂	Sulfur dioxide
PTT	PTT Public Company Limited
ROS	Reactive oxygen species
NOS	Nitric oxide synthase
NQO1	Quinone oxidoreductase
3-NF	3-Nitroflouranthrene
Frt	Fluoranthene
Pyr	Pyrene

BaA	Benz[<i>a</i>]anthracene
Chr	Chrysene
BbF	Benzo[<i>b</i>]fluoranthene
BkF	Benzo[<i>k</i>]fluoranthene
BaP	Benzo[<i>a</i>]pyrene
IDP	Indeno[1,2,3- <i>cd</i>]pyrene
DBA	Dibenz[<i>a,h</i>]anthracene
BgPe	Benzo[<i>ghi</i>]perylene
hr	Hour
C ₂ H ₄ O	Acetaldehyde
BP	Brake power
τ	Torque
ω	Angular velocity
F	Force
kg/kWh	Kilogram per kilowatt hour