

LIST OF NOTATIONS AND ABBREVIATIONS

List of Notations

A	Frequency factor
A_{CO_2}	Area of chromatogram of carbon dioxide
a_m	Area occupied by a molecule
C_v	Heat Capacity
dc	Mean crystallite diameter
E	Activation energy
E_b	Electron binding energy
E_k	Kinetic energy
E_w	Work function of the spectrometer
h	Hour
k	Kinetic rate constant
L	Avogadro's number
M	Weight of Soot at a typical temperature
M_o	Weight of initial soot
n_m	Calculated number of moles adsorbed
P	Gas Pressure
P_o	Saturation vapour pressure of the gas
R	Gas constant
RT	Retention time
SN_2	Selectivity to N_2
T	Temperature
T_i	Initial temperature of soot ignition
T_f	Total soot oxidation temperature
T_p	Peak temperature
T_{m-NO}	Temperature at the maximum conversion of NO
T_{50}	Temperature at which 50% soot is converted
V_I	Molar volume of the analysis gas
V_m	Volume of the gas required to form a monolayer on a unit

	gram of sample
X_{soot}	Fractional conversion of soot
X_{NO}	Fractional conversion of NO
$X_{\text{C}_3\text{H}_8}$	Fractional conversion of propane
W	Work done
λ	X ray wavelength
θ	Bragg's angle
β	Full width half maximum
ΔU	Change in internal energy

List of Abbreviations

A/F	Air-to-fuel ratio
ABC	Atmospheric brown cloud
ARAI	Automotive research association of India
BET	Brunauer–Emmett–Teller
BJH	Barett-Joyner-Halenda
BS	Bharat Stage
BSE	Backscattered Electron
CPCB	Central Pollution Control Board
Co-ppt	Co-precipitation
CRT	Continuously Regenerating Trap
CV	Calorific value
DE	Diesel Exhaust
DOCs	Diesel Oxidation Catalysts
DPF	Diesel Particulate Filter
DPM	Diesel Particulate Matter
ECMA	Emission Controls Manufacturers Association
EDX	Energy Dispersive X-Ray Analysis
EGR	Exhaust Gas Recirculation
EPA	Environmental Protection Agency
FBN	Fuel Bound Nitrogen
FID	Flame ionization detector
Fig.	Figure

FTF	Flow through filter
FTIR	Fourier Transform Infrared Spectroscopy
GC	Gas Chromatography
GHSV	Gas hour space velocity
HC	Hydrocarbons
HP	Hindustan Petroleum
HT	Hydrotalcite
HTlcs	Hydrotalcite like compound
IUPAC	International Union of Pure and Applied Chemistry
JCPDS	Joint Committee on Powder Diffraction System
LDH	Layered double hydroxide
LDV	Light Duty Vehicles
LNT	Lean NO _x Trap
LOT	Light off temperature
NAC	NO _x adsorber catalyst
NO _x	Oxides of Nitrogen
NSR	NO _x Storage and Reduction
NSCR	Non Selective catalytic reduction of NO _x
PAH	Polycyclic aromatic hydrocarbon
PAN	Peroxy-acetyl nitrate
PGM	Platinum-group metals
PM	Particulate Matter
PPM	parts per million
RC	Reactive calcination
RG	Reactive grinding
SCR	Selective catalytic reduction
SCS	Solution Combustion Synthesis
SEM	Scanning electron microscopy
SG	Sol-gel
SO _x	Oxides of sulphur
SOF	Soluble Organic Compound
SSA	Specific surface area
TCD	Thermal conductivity detector

TGA	Thermo gravimetric analysis
TUD	TU Delft
VOC	Volatile Organic Compounds
VM	Volatile Matter
XPS	X-ray photoelectron spectroscopy
XRD	X-ray diffraction