Notations

$2FI$	Two factor interaction
AAE	Average absolute error
α	Position of star points
ANN	Artificial neural network
$ANOVA$	Analysis of variance
BBD	Box-Behnken design
$BBDANN$	Box-Behnken designed ANN
b_{hk}	Bias at the k_{th} neuron in the hidden layer
b_o	Bias at the output layer
C_c	Coefficient of curvature
CCC	Circumscribed central composite
CCD	Central composite design
$CCDANN$	Central composite designed ANN
$CONVDANN$	Conventional designed ANN
C_u	Coefficient of uniformity
D_{10}	Effective diameter
DOE	Design of experiment
EDS	Energy dispersive X-ray spectroscopy
f	Activation function
$FCCD$	Face-centered composite design
$FFBPANN$	Feed forward back propagation artificial neural network
FIS	Fuzzy interface system
GA	Genetic algorithms
γ_w	Density of water
G_L	Specific gravity of lime
G_{RM}	Specific gravity of red mud

H	Number of hidden layers
ICC	Inscribed central composite
K	Number of neurons
L	Lime content
m	Number of hidden neurons
M	Level of independent variables
MAE	Maximum absolute error
$MAPE$	Mean absolute percentage error
max	Maximum
min	Minimum
ML	Silt with low compressibility
MLP	Multi layer perception
MSE	Mean square error
n	Number of observations
N	Wetting drying cycles
η/L_v	Porosity/volumetric lime ratio
$\eta/L_{v'} = \eta/L_{v^{0.11}}$	Adjusted porosity/volumetric lime ratio
$NaOH$	Sodium hydroxide
$norm$	Normalized
o	Measured output
$OFAT$	One factor at time
$o_{m_{max}}$	Maximum measured value
$o_{m_{min}}$	Minimum measured value
o_p	Predicted output
$\bar{o}_p$	Average of predicted output
q_u	Measured unconfined compressive strength (UCS)
q_{umax}	Predicted maximum unconfined compressive strength
$q_{u_{min}}$	Predicted minimum unconfined compressive strength
q_{un}	Normalized predicted unconfined compressive strength
q_{up}	Predicted unconfined compressive strength
q_t	Split tensile strength test
R^2	Coefficient of correlation (R-squared)
RBF	Radial basis function
$RMSE$	Root mean square error

rpm	Rotation per minute
RSM	Response surface methodology
S	Degree of saturation
SD	Standard deviation
SEM	Scanning electron micro graph
SPE	Scaled percent error
SVM	Support vector machine
t	Curing time
$TCLP$	Toxicity characteristics leachate procedure
$trainbr$	Bayesian regularization training function
UCS	Unconfined compressive strength (q_u)
$USCS$	Unified soil classification system
$USEPA$	United states environmental protection agency
w	Molding moisture content
w/L	Water/lime ratio
X_i	Normalized input variable i
XRD	X-ray diffraction
Z	Number of input factors
Z	Number of independent variables
γ_d	Dry density of the specimen
γ_w	Density of water