Journal of the Serbian Chemical Society
JSCS-info@shd.org.rs • www.shd.org.rs/JSCS
J. Serb. Chem. Soc. 85 (6) S330–S331 (2020) *Supplementary material*

SUPPLEMENTARY MATERIAL TO

ANN prediction of the efficiency of the decolourisation of organic dyes in wastewater by plasma needle

TATJANA Đ. MITROVIĆ[1]*, MIRJANA Đ. RISTIĆ[2], ALEKSANDRA PERIĆ-GRUJIĆ[2] and SAŠA LAZOVIĆ[3]

[1]Institute for Water Resources "Jaroslav Černi", Belgrade, Jaroslava Černog 11226, Belgrade, Serbia, [2]University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11000 Belgrade, Serbia and [3]Institute of Physics Belgrade, University of Belgrade, Pregrevica 118, 11080, Zemun-Belgrade, Serbia

J. Serb. Chem. Soc. 85 (6) (2020) 831–844

TABLE S-I. Structure and performance of the ANN used for the prediction of the decolourisation process of textile dyes RO 16, RB 19 and DR 28

	Dye	RO 16	RB 19	DR 28
Number of neurons per layer	Input layer	3	3	3
	Pattern layer	40	34	77
	Summation layer	2	2	2
	Output layer	1	1	1
Performance metrics				
RMSE[a]		0.045	0.091	0.055
MAE[b]		0.027	0.077	0.037
Dataset		Data points		
Training		40	34	77
Validation		12	10	21
Test		9	6	10

[a]Root Mean square error[1]; [b]mean absolute error[1]

TABLE S-IIa. Descriptive statistics of the model for the entire dataset and created subsets for RO 16

Input	Training				Validation				Test			
	M[a]	*S. E*[b]	Min	Max	*M*[a]	*S. E*[b]	Min	Max	*M*[a]	*S. E*[b]	Min	Max
t / min	24.9	3.5	0	90	18.9	4.7	2	60	18.4	6.4	0	45
Q / dm^3 min^{-1}	4.1	0.3	1.0	8.0	4.2	0.6	1.0	8.0	4.6	0.7	1.0	8.0
O_2 content, %	0.01	0.00	0.00	0.05	0.02	0.01	0	0.05	0.01	0.00	0.00	0.02
A/A_0[c]	0.38	0.05	0.00	1.00	0.41	0.08	0.00	0.87	0.50	0.14	0.02	1.00

* Corresponding author. E-mail: tatjana.mitrovic@jcerni.rs

TABLE S-IIb. Descriptive statistics of the model for the entire dataset and created subsets for RB 19

Input	Training				Validation				Test			
	M^a	$S.E^b$	Min	Max	M^a	$S.E^b$	Min	Max	M^a	$S.E^b$	Min	Max
t / min	18.5	3.4	0	90	37.9	12.7	2	120	17.0	8.9	2	60
Q / dm^3 min^{-1}	4.2	0.4	1.0	8.0	4.0	1.0	1.0	8.0	4.2	0.9	1.0	8.0
O_2 content, %	0.01	0.00	0	0.05	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.05
A/A_0	0.41	0.06	0.00	1.00	0.33	0.10	0.00	0.89	0.30	0.14	0.00	0.84

TABLE S-IIc. Descriptive statistics of the model for the entire dataset and created subsets for DR 28

Input	Training				Validation				Test			
	M^a	$S.E^b$	Min	Max	M^a	$S.E^b$	Min	Max	M^a	$S.E^b$	Min	Max
t / min	68.4	79.6	0	330	64.3	13.0	0	180	108	29.2	5	240
Q / dm^3 min^{-1}	4.0	2.0	1.0	8.0	4.1	0.4	1.0	8.0	3.4	0.4	1.0	4.0
O_2 content, %	0.03	0.04	0.00	0.10	0.02	0.01	0.00	0.10	0.01	0.01	0.00	0.05
A/A_0	0.39	0.30	0.02	1.00	0.37	0.06	0.04	1.00	0.28	0.08	0.06	0.81

[a]Mean value; [b]standard error; [c]model output

REFERENCES

1. J. Pooralhossini, M. A. Zanjanchi, M. Ghaedi, A. Asfaram, M. H. A. Azqhandi, *Appl. Organomet. Chem.* **32** (2018) 1 (http://dx.doi.org/10.1002/aoc.4205).