## Supporting information

## Multi-scale model Integrated particle dynamics and evolutionary algorithm with the coarse-grained particle partitioning ratio strategy for calculating the dissolution behaviors of supercritical carbon dioxide in polymer fluids

Li Mengshan1, \*, Wu Wei 1, Chen Bingsheng 1, Guan Lixin 1, Wu Yan 1 and Wang Nan 2,\*

1 College of Physics and Electronic Information, Gannan Normal University, Ganzhou, 341000, Jiangxi, China

2 College of Life Sciences, Jiaying University, Meizhou, 514015, Guangdong, China

\*Correspondence: jcimsli@163.com, 201401018@jyu.edu.cn ; Tel.:+867978393668

**Supporting information 1:** Experimental data

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| --- | --- | --- | --- | --- |
| Polymer | T | P | S | Ref |
| PS | 338.22-473.15 | 7.540-44.410 | 0.02641-0.16056 | IRANIAN POLYMER JOURNAL,2007, 16(11): 759-768. FLUID PHASE EQUILIBRIA,1996, 125(1-2): 129-138. JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS,2001, 39(17): 2063-2070. JOURNAL OF SUPERCRITICAL FLUIDS,2001, 19(2): 187-198. |
| PLLA | 308.00-323.00 | 9.620-31.460 | 0.16520-0.43010 | JOURNAL OF SUPERCRITICAL FLUIDS,2008, 47(2): 296-301. |
| HDPE | 433.15-473.20 | 10.731-18.123 | 0.00551-0.12296 | FLUID PHASE EQUILIBRIA,1999, 162(1-2): 261-276. IRANIAN POLYMER JOURNAL,2007, 16(11): 759-768. |
| PP | 313.20-483.70 | 7.400-24.910 | 0.03950-0.26170 | IRANIAN POLYMER JOURNAL,2007, 16(11): 759-768. FLUID PHASE EQUILIBRIA,1999, 162(1-2): 261-276. JOURNAL OF SUPERCRITICAL FLUIDS,2007, 40(3): 452-461. INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH,2009, 48(15): 7117-7124. |
| PBS | 323.15-453.15 | 8.008-20.144 | 0.04534-0.17610 | IRANIAN POLYMER JOURNAL,2007, 16(11): 759-768. INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH,2000, 39(12): 4813-4819. |
| PBSA | 323.15-453.16 | 7.870-20.128 | 0.04763-0.17411 | IRANIAN POLYMER JOURNAL,2007, 16(11): 759-768. FLUID PHASE EQUILIBRIA,2000, 167(1): 41-61. |
| PLGA | 308.00-323.00 | 10.140-31.470 | 0.09030-0.29630 | JOURNAL OF SUPERCRITICAL FLUIDS,2008, 47(2): 296-301. |
| PVAc | 333.15-373.15 | 7.772-17.449 | 0.16724-0.33241 | IRANIAN POLYMER JOURNAL,2007, 16(11): 759-768; JOURNAL OF SUPERCRITICAL FLUIDS,2001, 19(2): 187-198. |