**SUPPLEMENTARY DATABASE FOR A PAPER ‘PHASE DIAGRAM OF A BINARY MIXTURE IN A CLOSED CAVITY’ BY A. VOROBEV, D. LYUBIMOV AND T. LYUBIMOVA SUBMITTED FOR PUBLICATION AT THE JOURNAL PHYSICAL REVIEW E**

**FIGURE 1A (The phase diagram)**

|  |  |
| --- | --- |
| ***Dashed line (spinodal):***  **1/sqrt(Ca) q**  6.34981871 0  8.28632069 0.131145954  10.2228222 0.159971789  12.1593237 0.174079522  14.0958261 0.182239786  16.0323277 0.187431514  17.9688301 0.190954059  19.9053307 0.193459556  21.8418331 0.195307761  23.7783356 0.196711347  25.7148361 0.197802991  27.6513386 0.198669121  29.587841 0.19936806  31.5243416 0.199940369  33.4608421 0.200414971  35.3973465 0.200812966  37.333847 0.20115003  39.2703476 0.201438025  41.206852 0.201686054  43.1433525 0.201901197  45.0798531 0.202089012  47.0163574 0.202253968  48.952858 0.202399626  50.8893585 0.202528879  52.8258629 0.20264411  54.7623634 0.202747285  56.698864 0.202840015  58.6353683 0.202923685  60.5718689 0.202999428  62.5083694 0.203068212  64.44487 0.203130871  66.3813782 0.203188106  68.3178787 0.203240544  70.2543793 0.203288674  72.1908798 0.20333299  74.1273804 0.203373849  76.0638809 0.203411639  78.0003891 0.203446642  79.9368896 0.203479111  81.8733902 0.203509316  83.8098907 0.203537434  85.7463913 0.203563675  87.6828918 0.203588188  89.6194 0.203611135  91.5559006 0.203632623  93.4924011 0.203652799  95.4289017 0.203671753  97.3654022 0.20368959  99.3019028 0.203706399  101.238411 0.203722239  103.174911 0.203737199  105.111412 0.203751341  107.047913 0.203764722  108.984413 0.203777388  110.920914 0.203789398  112.857422 0.203800797  114.793922 0.203811616  116.730423 0.203821912  118.666924 0.203831702  120.603424 0.203841031  122.539925 0.203849912  124.476433 0.203858376  126.412933 0.203866467  128.349426 0.203874186  130.285934 0.203881562  132.222443 0.203888625  134.158936 0.203895375  136.095444 0.203901842  138.031937 0.203908041  139.968445 0.203913987  141.904953 0.203919679  143.841446 0.203925163  145.777954 0.203930408  147.714447 0.203935459  149.650955 0.203940317  151.587448 0.203944981  153.523956 0.203949481  155.460464 0.203953803  157.396957 0.203957975  159.333466 0.203961983  161.269958 0.203965858  163.206467 0.203969598  165.142975 0.203973204  167.079468 0.203976676  169.015976 0.203980044  170.952469 0.203983292  172.888977 0.203986421  174.82547 0.203989461  176.761978 0.203992397  178.698486 0.203995243  180.634979 0.203997985  182.571487 0.204000652  184.50798 0.20400323  186.444489 0.204005733  188.380997 0.204008147  190.31749 0.204010502  192.253998 0.204012781  194.190491 0.204014987  196.126999 0.204017133  198.063492 0.204019219  200 0.204021245 | ***Solid line (binodal):***  **1/sqrt(Ca) q**  7.07106781 0.128999993  8.16496563 0.192000002  10 0.257999986  14.1421356 0.335000008  22.3606796 0.393999994  25 0.404000014  31.622776 0.421999991  50 0.445499986  70.7106781 0.458200008  100 0.467599988  141.421356 0.474599987  158.113892 0.476799995  182.574188 0.478500009  200 0.480699986 |

**FIGURE 1B (The time dependences of droplet like perturbations)**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Dash dot line:***  **Time *r*d**  0 0.0552640669  0.0399999991 0.0537504293  0.0799999982 0.0534594357  0.119999997 0.0530883707  0.159999996 0.0526033528  0.200000003 0.0519548766  0.239999995 0.0510788821  0.280000001 0.0499168895  0.319999993 0.0484467037  0.360000014 0.0466132052  0.400000006 0.0439588279  0.439999998 0.038570419  0.479999989 0.224736303 | ***Dashed line:***  **Time *r*d**  0 0.0562398471  0.0399999991 0.0549182519  0.0799999982 0.0548505224  0.119999997 0.0547739491  0.159999996 0.0546870157  0.200000003 0.0545875244  0.239999995 0.0544725955  0.280000001 0.0543384068  0.319999993 0.0541797504  0.360000014 0.0539893992  0.400000006 0.0537570715  0.439999998 0.0534677505  0.479999989 0.0530990958  0.519999981 0.052617535  0.560000002 0.0519739911  0.600000024 0.0511046387  0.639999986 0.0499503985  0.680000007 0.0484882146  0.720000029 0.0466665737  0.75999999 0.0440477133  0.800000012 0.0387698635  0.839999974 0.210809112 | ***Thick solid line:***  **Time *r*d**  0 0.0572164692  0.0399999991 0.0559645742  0.0799999982 0.0559726693  0.119999997 0.0559807122  0.159999996 0.0559889637  0.200000003 0.055997435  0.239999995 0.0560061224  0.280000001 0.0560150295  0.319999993 0.0560241528  0.360000014 0.0560334921  0.400000006 0.0560430512  0.439999998 0.0560528226  0.479999989 0.0560628101  0.519999981 0.0560730062  0.560000002 0.0560834147  0.600000024 0.0560940243  0.639999986 0.0561048388  0.680000007 0.0561158545  0.720000029 0.0561270602  0.75999999 0.0561384559  0.800000012 0.0561500378  0.839999974 0.0561617948  0.879999995 0.0561737269  0.920000017 0.0561858192  0.959999979 0.0561980717  1 0.0562104769  1.03999996 0.0562230237  1.08000004 0.0562357046  1.12 0.0562485121  1.15999997 0.0562614352  1.20000005 0.0562744662  1.24000001 0.0562875979  1.27999997 0.0563008189  1.32000005 0.0563141145  1.36000001 0.0563274845  1.39999998 0.0563409105  1.44000006 0.0563543849  1.48000002 0.0563678965  1.51999998 0.0563814379  1.55999994 0.056394998  1.60000002 0.0564085618  1.63999999 0.0564221255  1.67999995 0.0564356744  1.72000003 0.0564491972  1.75999999 0.0564626902  1.79999995 0.0564761385  1.84000003 0.0564895347  1.88 0.0565028675  1.91999996 0.0565161332  1.96000004 0.0565293133  2 0.0565424077  2.03999996 0.0565554053  2.07999992 0.0565682985  2.11999989 0.05658108  2.16000009 0.0565937422  2.20000005 0.0566062778  2.24000001 0.056618683  2.27999997 0.0566309504  2.31999993 0.0566430688  2.3599999 0.0566550419  2.4000001 0.0566668622  2.44000006 0.0566785187  2.48000002 0.0566900149  2.51999998 0.0567013472  2.55999994 0.0567125045  2.5999999 0.0567234904  2.6400001 0.0567343011  2.68000007 0.0567449331  2.72000003 0.0567553863  2.75999999 0.0567656569  2.79999995 0.0567757413  2.83999991 0.0567856431  2.88000011 0.0567953624  2.92000008 0.0568048954  2.96000004 0.0568142384  3 0.0568233989  3.03999996 0.0568323731  3.07999992 .0568411611  3.11999989 0.0568497665  3.16000009 0.0568581894  3.20000005 0.056866426  3.24000001 0.0568744838  3.27999997 0.0568823628  3.31999993 0.056890063  3.3599999 0.0568975843  3.4000001 0.0569049343  3.44000006 0.056912113  3.48000002 0.0569191165  3.51999998 0.0569259562  3.55999994 0.0569326282  3.5999999 0.0569391362  3.6400001 0.0569454841  3.68000007 0.0569516718  3.72000003 0.0569577068  3.75999999 0.0569635853  3.79999995 0.0569693148  3.83999991 0.0569748953  3.88000011 0.0569803305  3.92000008 0.0569856241  3.96000004 0.0569907762  4 0.0569957942 | ***Thin solid line:***  **Time *r*d**  0 0.0611325055  0.0399999991 0.0597370565  0.0799999982 0.0596518815  0.119999997 0.0595669597  0.159999996 0.0594827496  0.200000003 0.0593995303  0.239999995 0.0593175627  0.280000001 0.0592370741  0.319999993 0.059158273  0.360000014 0.0590813309  0.400000006 0.0590063967  0.439999998 0.0589335896  0.479999989 0.0588629991  0.519999981 0.0587946922  0.560000002 0.0587287135  0.600000024 0.0586650819  0.639999986 0.0586038008  0.680000007 0.0585448556  0.720000029 0.0584882237  0.75999999 0.0584338605  0.800000012 0.0583817214  0.839999974 0.0583317503  0.879999995 0.0582838878  0.920000017 0.0582380593  0.959999979 0.0581942052  1 0.0581522472  1.03999996 0.0581121184  1.08000004 0.0580737405  1.12 0.0580370463  1.15999997 0.0580019616  1.20000005 0.0579684153  1.24000001 0.0579363443  1.27999997 0.0579056777  1.32000005 0.0578763522  1.36000001 0.0578483082  1.39999998 0.0578214861  1.44000006 0.0577958226  1.48000002 0.057771273  1.51999998 0.0577477776  1.55999994 0.0577252917  1.60000002 0.0577037632  1.63999999 0.0576831475  1.67999995 0.0576634035  1.72000003 0.0576444864  1.75999999 0.0576263629  1.79999995 0.0576089919  1.84000003 0.0575923398  1.88 0.0575763732  1.91999996 0.0575610623  1.96000004 0.0575463697  2 0.0575322732  2.03999996 0.057518743  2.07999992 0.0575057566  2.11999989 0.0574932881  2.16000009 0.0574813113  2.20000005 0.0574698076  2.24000001 0.0574587546  2.27999997 0.0574481301  2.31999993 0.0574379228  2.3599999 0.0574281067  2.4000001 0.0574186668  2.44000006 0.0574095882  2.48000002 0.0574008562  2.51999998 0.0573924556  2.55999994 0.057384368  2.5999999 0.0573765896  2.6400001 0.0573690981  2.68000007 0.0573618859  2.72000003 0.057354942  2.75999999 0.0573482551  2.79999995 0.0573418103  2.83999991 0.057335604  2.88000011 0.0573296249  2.92000008 0.0573238619  2.96000004 0.0573183075  3 0.0573129542  3.03999996 0.0573077947  3.07999992 0.0573028177  3.11999989 0.0572980195  3.16000009 0.0572933927  3.20000005 0.0572889298  3.24000001 0.0572846234  3.27999997 0.0572804697  3.31999993 0.057276465  3.3599999 0.0572725981  3.4000001 0.0572688654  3.44000006 0.0572652631  3.48000002 0.0572617874  3.51999998 0.0572584346  3.55999994 0.0572551936  3.5999999 0.0572520681  3.6400001 0.0572490469  3.68000007 0.0572461337  3.72000003 0.0572433174  3.75999999 0.0572405979  3.79999995 0.0572379716  3.83999991 0.0572354347  3.88000011 0.0572329871  3.92000008 0.0572306179  3.96000004 0.0572283305  4 0.0572261214 |

**FIGURE 1C (The size of the critical droplet)**

**1/sqrt(Ca) *r*c**

7.07106781 0.33885926

8.16496563 0.289479047

10 0.241295964

14.1421356 0.179559171

22.3606796 0.131140456

25 0.123079672

31.622776 0.103059895

50 0.0865800306

70.7106781 0.0722235218

100 0.0569957942

141.421356 0.0523239449

158.113892 0.0506460331

182.574188 0.0471821241

200 0.044284761

**FIGURE 1D (The interface thickness of the critical droplet)**

**1/sqrt(Ca) *δ*c**

7.07106781 0.112799853

8.16496563 0.0998828039

10 0.0838693753

14.1421356 0.0597784594

22.3606796 0.0369522758

25 0.0330115631

31.622776 0.0261308216

50 0.0165471956

70.7106781 0.0118452432

100 0.00861434732

141.421356 0.00604239805

158.113892 0.00546956994

182.574188 0.00478701619

200 0.00438993098

**FIGURE 1E (The surface tension for the critical droplet)**

**1/sqrt(Ca) *σ*c**

7.07106781 0.0013596958

8.16496563 0.00452113245

10 0.00717893755

14.1421356 0.00830714684

22.3606796 0.00757510262

25 0.0071433275

31.622776 0.00590264704

50 0.00419686222

70.7106781 0.00301661249

100 0.00210086792

141.421356 0.0015304496

158.113892 0.00135871081

182.574188 0.00116921938

200 0.00106423919

**FIGURE 1F (The average concentrations in the droplet phase and outside the droplet)**

**1/sqrt(Ca) *C*1 *C*2**

7.07106781 -0.00344705046 0.13080357

8.16496563 -0.050029736 0.217306241

10 -0.107583202 0.300245166

14.1421356 -0.156840131 0.371545345

22.3606796 -0.228447348 0.42386362

25 -0.233493984 0.432839751

31.622776 -0.257560253 0.443130195

50 -0.32520476 0.462917507

70.7106781 -0.341209888 0.471281111

100 -0.361185819 0.476056159

141.421356 -0.390241891 0.482082605

158.113892 -0.408649534 0.483820766

182.574188 -0.411562085 0.485502362

200 -0.412141681 0.486201972