

AUTHOR INDEX

Note: Page numbers in italics denote author names in Bibliography.

A

Acierno, D., 587, 595, 596, 643, 644
 Adam, G., 151, 187, 244, 595
 Adamse, J.W.C., 554, 557, 558, 559, 595
 Aharoni, S.M., 146, 187, 635, 636, 643
 Alfonso, G., 724, 744
 Alfrey, T., 42, 171, 187, 500, 695, 701
 Allen, G., 46, 99, 107, 108, 225, 226
 Allen, V.R., 535, 596
 Al-Malaika, S., 783, 786
 Altenburg, K., 46
 Altgelt, K.H., 46
 Anderson, J.W., 366, 754, 762
 Andrade, da Costa E.N., 537, 595, 603, 608
 Andreeva, L.N., 306, 318
 Andrew, E.R., 375, 381
 Andrews, E.H., 461, 500, 867, 873
 Andrews, R.D., 302, 318, 501
 Angad, Gaur, H., 378
 Angus, W.R., 357, 381
 Armstrong, R.C., 547, 595, 597
 Arnett, R.L., 107, 579
 Arnold, P.A., 202, 226, 764
 Asada, T., 581, 582, 583, 597, 639
 Ashby, M.F., 820, 821, 822, 824, 845
 Askadskii, A.A., 4, 5, 73, 107, 108, 302, 303, 317, 318
 Asmussen, F., 699, 700, 701
 Astarita, G., 595, 725, 743
 Atkins, P.W., 352, 380, 658, 701
 Avrami, M., 704, 708, 709, 744, 796
 Axtell, F.H., 735, 744

B

Babrauskas, V., 853, 873
 Baer, E., 837, 845
 Bagley, E.B., 208, 226, 595
 Baird, E.M., 881, 885
 Balazs, C.F., 450, 503
 Ballman, R.L., 502, 579, 596
 Ballou, J.W., 388, 505, 508, 522
 Baltá-Calleja, F.J., 360, 381
 Baltussen, J.J.M., 483, 484, 489, 490-1, 493, 494, 498,
 500, 501, 502, 744, 745, 741
 Barbari, T.A., 684, 687, 688, 689, 701
 Barnes, H.A., 526, 568, 569, 595, 630, 634, 643
 Barnett, F.R., 390, 460, 503
 Barnett, S.M., 579, 595
 Barrales-Rienda, J.M., 360, 381
 Barrer, R.M., 682, 687, 701
 Barrie, I.T., 594, 595
 Barrie, J.A., 690, 701, 702

Barton, J.M., 130, 187
 Bartos, O., 579, 595
 Basset, D.C., 726, 744
 Batchinski, A.J., 537, 595
 Batzer, H., 130, 149, 188
 Bauwens, J.C., 464, 501
 Bauwens-Crowet, C., 464, 501
 Bayer, O., 41
 Beaman, R.G., 167, 187
 Beckmann, P., 317
 Beck, R.H., 317, 444
 Becker, R., 130, 187, 704, 744
 Bedwell, M.F., 360, 381
 Beekmans, F., 582, 583, 587, 595
 Bekkedahl, N., 380, 501
 Benbow, J.J., 578-9, 580, 595, 596
 Bennett, H.E., 317, 318
 Benoit, H., 274, 284
 Beret, S., 102, 107
 Bergen, R.L., 786, 872, 873
 Berger, J., 149, 187, 745
 Bernier, G.A., 7, 868, 869, 873
 Berry, G.C., 535, 595
 Bertola, V., 580, 595, 597
 Berzelius, J.J., 64
 Bestul, A.B., 125, 127
 Bevan, L., 867, 873
 Bhatnagar, S.S., 357, 381
 Bianchi, U., 151, 187
 Bicerano, J., 5, 127, 146, 147, 148, 149, 187, 202, 244,
 283, 317, 352, 521, 652, 701, 719, 744, 776, 777
 Biltz, W., 76, 107
 Bin, Ahmad, Z., 820, 822, 824, 845
 Binder, G., 815, 818
 Binsbergen, F.L., 715, 744
 Bird, R.B., 595, 597, 629, 643, 817
 Bitter, F., 357, 381
 Bixler, H.J., 661, 663, 702
 Black, W.B., 390, 501
 Blagrove, R.J., 21, 46
 Bland, D.R., 325, 326, 354
 Beerbower, A., 205, 210, 226
 Blanks, R.F., 203, 226
 Blokland, R., 404, 501
 Boenig, H.V., 801, 817
 Boerstoel, H., 495, 501, 502, 635, 636, 643, 644, 744, 745
 Boger, D.V., 526, 578, 595, 631
 Bolland, J.L., 781, 782, 786
 Bondi, A., 4, 5, 64, 66, 72, 73, 76, 90, 100, 107, 119, 123,
 127, 226, 643
 Boon, J., 710, 711, 712, 720, 723, 744
 Bowden, F.P., 840, 844

Bower, D.I., 320, 339, 341, 352, 353, 380
 Boyd, B.H., 99, 108
 Boyd, R.H., 327, 352
 Boyer, R.F., 90, 91, 100, 107, 108, 132, 167, 168, 170, 173, 187, 381, 426, 603, 644
 Brandrup, J., 3, 5, 107, 127, 187, 225, 226, 244, 283, 318, 322, 352, 604, 643, 761
 Braun, G., 611, 643
 Bredas, J.L., 341, 353, 354
 Breitmaier, E., 370, 380, 382
 Bremner, J.G.M., 754, 762
 Breuer, H., 150, 187
 Bristow, G.M., 203, 226
 Britton, R.N., 733, 744
 Broersma, S., 357, 381
 Broido, A., 776, 777
 Brostow, W., 36, 46, 844
 Brown, W.E., 826, 845
 Brüggling, W., 183, 187, 879
 Brydson, J.A., 187, 579, 580, 595, 817
 Bu, H.S., 117
 Buckley, C.P., 398, 399, 472, 500, 506, 521, 845
 Bucknall, C.B., 398, 399, 472, 500, 844, 845
 Bueche, F., 90, 99, 107, 187, 188, 283, 534, 548, 556, 561, 595, 613, 643, 644, 694, 695, 701, 734
 Bunn, C.W., 64, 66, 167–8, 187, 191, 192, 226, 500
 Burchard, W., 21, 46
 Burghardt, W.R., 583, 584, 585, 596, 641, 643
 Burke, J., 210, 225
 Burrell, H., 205, 226
 Busse, W.F., 801, 812, 817

C

Cabrera, B., 357, 381
 Cao, M.Y., 117, 127
 Capaccio, G., 739, 744
 Carreau, P.J., 547, 596, 625, 643
 Cassidy, P.E., 243, 244
 Chance, R.R., 300, 341, 353, 354, 478, 881, 884
 Chang, M.C.O., 518, 519, 522
 Chang, S.S., 125, 127
 Chee, K.K., 24, 46, 203, 210, 226
 Chen, S.-A., 208, 226
 Cheng, S.Z.D., 117, 127, 761
 Chermin, H.A.G., 64, 67, 754, 755, 762
 Chern, R.T., 688, 701
 Chou, T.W., 843, 844, 845
 Chu, B.J., 21, 46
 Clark, E.S., 739, 744
 Clasen, C., 276, 283
 Clausius, R., 64, 66, 320, 321, 322, 323, 622, 900
 Clegg, D.W., 592–3, 596
 Clegg, P.L., 573, 596
 Coates, J., 513, 522, 646, 653
 Coehn, A., 333, 354
 Cogswell, F.N., 545, 574, 577, 581, 583–5, 594, 596
 Cohen, R.E., 547, 597
 Cole, K.S., 326, 327, 329, 354
 Cole, R.H., 326, 327, 329, 354

Cole, T.B., 738, 745
 Coleman, B.D., 550, 833, 845
 Collins, E.A., 24, 46
 Collyer, A.A., 587, 596, 634, 635, 643, 644
 Cornelissen, J., 539, 596
 Corradini, P., 11, 45, 47
 Cote, J.A., 563, 596
 Cotton, J.P., 24, 46
 Cotts, D.B., 327, 353
 Cowan, B., 380
 Cowan, D.O., 337, 338, 342, 343, 353
 Cowie, J.M.G., 146, 187
 Cox, W.P., 553, 596
 Crank, J., 425, 696, 701, 702
 Cross, M.M., 547, 596, 643
 Crowley, J.D., 205, 226
 Cruikshank, J.H., 357, 381
 Czechowski, G., 586, 588, 596

D

Dainton, F.S., 111, 123, 127, 757, 762
 Dale, T.P., 61, 64, 66, 290–1, 292, 318
 Dann, J.R., 235, 244
 Daoud, M., 271, 283, 284
 Darby, J.R., 331, 354
 Darby, R., 24, 354
 Dautzenberg, H., 276, 283
 Davies, H., 317, 318
 Davis, H.G., 76, 77, 78, 107
 Debye, P., 66, 116, 308, 318, 354, 701
 Dee, G.T., 237, 244
 Deeley, C.W., 807, 817
 De Gennes, P.G., 266–72, 279, 283, 284, 518, 522, 580, 595, 596, 702, 795
 De Jonge, I., 785, 786
 Delmas, G., 203, 227
 Demus, D., 36, 46
 Denisov, E.T., 783, 786
 Denys, K.F.J., 592, 596
 De Paula, J., 380, 658, 701
 Deutsch, K., 380, 407, 501
 De Vries, H., 307, 318, 483–4, 486, 501, 502, 745
 De Waele, A., 546, 596
 Di Benedetto, A.T., 149, 226
 Diehl, P., 371, 382
 Dillon, R.E., 548, 597
 Di Marzio, E.A., 148, 151, 187
 Dinter, R., 545, 596
 Dobb, M.G., 635, 643, 705, 739, 740, 741, 744
 Doi, M., 283, 585, 595, 635, 643, 701
 Domae, H., 815, 818
 Doolittle, A.K., 537, 596, 621
 Doppert, H.L., 640, 641, 643, 745
 Dorfman, J.G., 357, 358, 380
 Döring, W., 294
 Dorsey, N.E., 101, 107
 Doty, P., 276, 284
 Dreval, V.Y.E., 615, 643, 644
 Duda, J.L., 693, 696, 701, 702

Dunkel, M., 191, 192, 198, 226
 Dunlop, A.N., 24, 46

E

Eder, G., 722, 725, 744, 746
 Edwards, S.F., 283, 635, 643, 701
 Ehrenfest, P., 150, 151, 152, 187
 Eiermann, K., 501, 646–50, 653
 Einhorn, I.N., 864, 872, 873
 Einstein, A., 116, 251, 602
 Eisele, U., 403, 443, 501
 Eisenberg, H., 275, 276, 283, 284
 Eisenlohr, F., 61, 292, 318
 Elias, H.G., 21, 45, 211, 225, 283
 Engel, F.V.A., 55, 66
 Epstein, A.J., 348, 353, 354
 Ernst, R.R., 366, 380
 Everage, A.E., 579, 596
 Exner, O., 66, 77, 78, 107
 Eyring, H., 421, 464–7, 500, 537, 595, 596, 762

F

Fahlenbrach, H., 357, 381
 Farmer, E.H., 781, 786
 Farquharson, J., 357, 381
 Fedors, R.F., 77, 78, 107, 191, 192, 195, 198, 226, 475, 477, 501, 502
 Fenimore, C.P., 853, 873
 Ferguson, J., 631, 632, 633, 644
 Ferrari, A.G., 579, 596
 Ferry, J.D., 409, 442, 444, 445, 447, 452, 500, 503, 507, 521, 547, 595, 596, 597, 611, 620–4, 643, 644, 694, 701, 713, 813, 815, 825, 845
 Fetters, L.J., 247, 283, 284
 Fillers, R.W., 447, 448, 501
 Finger, F.L., 402, 403
 Finkelmann, H., 36, 47, 175, 187
 Finn, A., 291, 318
 Fisher, J.C., 704, 746
 Fixman, M., 252, 263, 265, 284
 Flom, D.G., 840, 845
 Flory, P.J., 18, 22, 103, 146, 167, 187, 201, 202, 211, 214, 225, 246, 249, 283, 272, 273, 274, 401, 500, 501, 608, 638, 682
 Ford, T.F., 602, 643
 Fortune, L.R., 99, 107
 Foster, G.N., 224, 226
 Foubert, I., 709, 744
 Fowkes, F.M., 235, 239–40, 244
 Fox, H.W., 232, 233, 244
 Fox, R.B., 236, 244
 Fox, T.G., 146, 149, 187, 211, 226, 534, 535, 539, 595, 596
 Frank, F.C., 390, 501, 587–8
 Franken, P.A., 349, 354
 Franklin, J.L., 66, 754, 762
 Franse, M.W.C.P., 177, 187, 642, 643
 Frensdorff, H.K., 390, 501
 Frisch, H.L., 221, 225, 284, 674, 695, 701

Fritch, L.W., 806, 817
 Fröhlich, H., 324, 353, 421
 Fuller, G.G., 583, 585, 596, 641
 Fulmer, G.E., 872, 873
 Fuoss, R.M., 275, 284
 Furches, B.J., 804, 817

G

Gandica, A., 713, 714, 744
 Gee, D.R., 111, 123, 128
 Gee, G., 151, 187, 226, 401, 501
 Gibbs, J.H., 148, 151, 187
 Gibbs, J.W., 202, 704, 710, 712, 743
 Giddings, J.C., 21, 47
 Gilmore, G.D., 103, 108, 222, 223, 227
 Girifalco, L.A., 233, 239, 244
 Gladstone, J.H., 61, 64, 290–2, 318
 Gligo, N., 605, 607, 644
 Goedhart, D.J., 47, 292, 309, 318
 Goldbach, G., 430–1, 501
 Good, R.J., 239, 244
 Goppel, J.M., 809, 817
 Gordy, W., 205, 226
 Gortemaker, F.H., 553, 554, 596
 Gotsis, A.D., 583–5, 596
 Gottlieb, S., 76–8, 107
 Graessley, W.W., 24, 47, 188, 284, 548, 563, 595, 596, 627–9, 643
 Gray, F.W., 357, 381
 Gray, G., 36
 Grebowicz, J., 172, 187, 188
 Greet, R.J., 537, 596
 Gregory, D.R., 544, 564, 596
 Greiner, R., 427, 501
 Griffith, A.A., 455, 473, 474, 475, 501, 842, 845
 Griskey, R.G., 126, 128, 226
 Gross, D., 864, 873
 Grunberg, L., 230, 244
 Grüneisen, E., 391, 393, 501
 Guggenheim, E.A., 237, 244
 Gugumus, F.L., 785, 786
 Gurnee, E.F., 171, 187, 701
 Guskey, S.M., 585, 596
 Guth, E., 41, 401, 502, 505–506, 522

H

Haberditzl, W., 357, 358, 380
 Hadden, S.T., 77, 108
 Hadley, D.W., 455, 464, 465, 501
 Halpin, J.C., 844, 845
 Han, C.D., 557, 558, 559, 574–5, 596, 817
 Hands, D., 646, 653
 Hansen, C.M., 205–208, 210, 212, 215, 218, 219, 226, 870, 873
 Haque, M.A., 103–105, 107
 Hara, H., 726, 745
 Harrison, E.K., 76, 77, 107
 Hartmann, B., 103–105, 107, 376, 377, 388, 391, 394, 502, 506–508, 510–12, 514–15, 521, 522

Havriliak, S.J., 329
 Havriliak, Jr, S., 329
 Hawker, C.J., 40, 47
 Haworth, B., 735, 744
 Hayes, R.A., 130, 187, 191, 192, 197, 198, 226
 Hazell, E.A., 462, 503
 Hazleton, R.L., 627, 628, 643
 Hearle, J.W.S., 46, 307, 318, 322, 353, 500, 743, 746, 885
 Heckert, W.W., 481, 502
 Heeger, A.J., 44, 337, 344, 345, 353, 354
 Heijboer, J., 421–5, 502
 Heinze, H.D., 149, 187
 Heitz, W., 183, 187
 Hellwege, K.H., 545, 596, 646, 653
 Hendrix, J.F., 854, 873
 Henry, L.F., 208, 226, 355, 870, 873, 890, 901
 Hermann, K., 29, 47
 Hermans, J.J., 276, 277, 284, 479–80, 492, 608, 643
 Hermans, P.H., 500, 502, 742, 744
 Hertz, H., 502, 837, 845
 Herwig, H.U., 485, 488, 502, 744
 Heusch, R., 611, 612, 615, 644
 Heuvel, H.M., 729, 732, 744
 Hiatt, G.D., 454, 501
 Hildebrand, J.H., 189, 201, 205, 210, 226, 230, 244, 868–9
 Hill, W.K., 357, 381
 Hoarau, J., 360, 381
 Hoernschemeyer, D., 208, 226
 Hoffman, J.D., 704, 714, 715, 717, 744
 Hoftyzer, P.J., 47, 64, 67, 77, 108, 188, 132, 191, 192, 197, 198, 212, 213, 215, 216, 218, 219, 226, 227, 253, 256, 284, 392, 400, 503, 539, 541, 542, 597, 617, 643, 746, 858, 871, 873
 Hoke, C.H.E., 861, 873
 Holmes, D.B., 804, 805–806, 817
 Holzmüller, W., 46, 545, 596
 Hope, P., 785, 786
 Hopfenberg, H.B., 695, 701
 Horiguchi, H., 329, 354
 Hornak, J.P., 373, 380
 Hosemann, R., 31, 32, 47, 381
 Houwink, R., 18, 221, 250, 252, 255–7, 261, 263, 265, 273–4, 276, 278, 280, 284, 503, 601–603, 619
 Howells, E.R., 579, 596
 Howorth, W.S., 877, 885
 Hoy, K.L., 191, 194, 197, 198, 212, 216–19, 227, 871
 Huang, C.J., 110, 128
 Hudson, N.E., 596, 631, 632, 633, 644
 Huggins, M.L., 47, 65, 66, 77, 78, 107, 201, 202, 273, 292, 318, 600–601, 603, 604, 618, 644, 681, 682, 795
 Huisman, R., 502, 644, 729, 732, 744, 745
 Huntjens, F.J., 149, 187, 777
 Huppler, J.D., 629, 644
 Hutton, J.F., 526, 568, 595, 634, 643

I

Imhof, L.G., 864, 873
 Immergut, E.H., 5, 107, 127, 187, 225, 226, 244, 283, 318, 352, 322, 604, 643, 761

Iovleva, M.M., 636, 644
 Ito, Y., 626, 644
 Ivin, K.J., 750, 757, 761, 762

J

Jabarin, S.A., 316, 318
 Jacobson, S., 350, 354
 Jadzyn, J., 586, 588, 596
 James, D.F., 568, 596, 631, 632, 644
 James, H.M., 401, 502
 Jamet, M., 744
 Janeschitz-Kriegl, H., 57, 300, 303, 305, 317, 318, 551–2, 554, 572, 595, 596, 621, 644, 722–5, 744, 746
 Jannink, G., 271, 283, 284
 Jansen, J.C., 175, 177, 188
 Jarvis, N.L., 236, 244
 Jarzynski, J., 507, 513, 522
 Jenckel, E., 611, 615, 644
 Jenekhe, S.A., 338, 354
 Jin, S., 590, 596
 Johnson, A.J., 110, 128
 Johnson, M.F., 605, 644
 Johnson, P.R., 854, 855, 857, 873
 Jones, D.M., 633
 Jones, L.D., 110, 128
 Jones, T.E.R., 596, 631, 632

K

Kachin, G.A., 804, 817
 Kamal, H.R., 222, 227
 Kambour, R.P., 615, 616, 644, 867, 868, 873
 Kaminsky, W., 43
 Kampschoer, G., 834, 835, 845
 Kampschreur, J.H., 489, 502, 745
 Kampschulte, U., 183, 187
 Kanig, G., 149, 188
 Karasz, F.E., 147, 148, 188, 353
 Kardos, A., 646, 653
 Katz, J.R., 41
 Kauzmann, W., 151, 188
 Kavesh, S., 704, 744
 Keller, A., 29, 32, 47, 705, 743, 744
 Keller, F., 370, 382
 Kelley, F.N., 188, 611, 615, 644
 Kevorkian, R., 111, 123, 128
 Khanna, Y.P., 709, 744
 Kiel, A.M., 731, 745
 Kilb, R.W., 273, 284
 King, III, R.E., 283, 785
 Kirchner, P., 698, 700, 702
 Kirkland, J.J., 21, 46, 47
 Kirschbaum, R., 736, 744
 Kirshenbaum, L., 99, 107
 Kissi, N.E., 578, 596
 Kiss, G., 639, 640, 644
 Klaase, P.T.A., 350, 353
 Klinkenberg, A., 57, 66
 Klop, E.A., 502, 745, 865, 873
 Knappe, W., 596, 646, 652, 653

Knight, G.J., 147, 169, 188
 Kobayashi, K., 735, 744
 Koenhen, D.M., 207, 227
 Kogut, J., 266, 284
 Koppelman, J., 411, 502
 Kornfield, J.A., 724, 745
 Koros, W.J., 682, 684, 686–9, 701, 702
 Korshak, V.V., 764, 776, 777, 872
 Kothandaraman, H., 152, 188
 Kovacs, A.J., 151, 188, 430, 502, 611, 643, 714, 746
 Kraemer, E.O., 22, 600, 644
 Kratky, O., 248, 284, 479, 502
 Kreibich, U.T., 130, 149, 188
 Krigbaum, W.R., 42, 46, 187, 252, 284, 743
 Kuhn, W., 247–8, 284, 401, 502
 Kulicke, W.-M., 276, 283
 Kurata, M., 246, 284
 Kurtz, S.S., 77, 78, 107
 Kwon, Y.D., 34, 47, 728, 731, 745

L

Lacombe, R.H., 103, 107
 Lamb, P., 578–80, 595, 596
 Lambie, J.H., 302, 318
 Lammers, M., 636, 644
 Lamonte, R.R., 811, 817
 Landel, R.F., 475, 477, 501, 502, 503, 597, 713, 815
 Landi, P., 350, 354
 Larson, R.G., 572, 585, 587, 595, 597, 643, 644
 Laun, H.M., 570, 571, 572, 596, 597, 631
 Leaderman, H., 442, 502
 Le Bas, G., 76, 107
 Lee, L.H., 169, 235, 244
 Lee, W.A., 130, 187, 188, 230
 Leeper, H.M., 29, 47, 745
 Lehmann, O., 34, 47
 Lemstra, P.J., 318, 733, 734, 736, 737, 744,
 745, 746, 845
 Lenz, R.W., 180, 187, 188, 222, 227
 Leuchs, O., 29, 30, 47
 Levan, N.T., 222, 227
 Levy, G.C., 370, 380, 381
 Lewis, O.G., 3, 5, 107
 Li, K., 77, 78, 107
 Lin, K.F., 77, 78, 107, 191, 192, 227
 Lindeman, L.R., 627, 628, 643
 Lindemann, F.A., 117, 128
 Lipkin, M.R., 77, 78, 107
 Litt, M., 538, 596
 Liu, F., 327, 352
 Lodge, A.S., 548, 552, 570, 595
 Lommerts, B.J., 742, 744
 Looyenga, H., 61–2, 66, 292, 318
 Lorentz, H.A., 61, 66, 291, 318, 321
 Lorenz, L.V., 66, 291–2, 321, 324
 Loshak, S., 149, 187, 188, 539, 596
 Lowe, I.J., 226, 375, 382
 Lydersen, A.L., 216, 227
 Lyons, P.F., 353, 618–19, 862

M

Maat, H.T., 738, 744
 McArdle, C.B., 36, 46
 McCrum, N.G., 187, 353, 398, 399, 424, 426, 465, 466,
 472, 500, 521, 825, 845
 MacDiarmid, A.G., 337, 341, 344–6, 353, 354
 McGowan, J.C., 230, 244, 392, 502, 545, 594, 596
 McHugh, A.J., 734, 735, 745
 McLoughlin, J.R., 433, 502
 MacNulty, B.J., 867, 870, 873
 Macosko, C.W., 569, 595, 644
 Madorsky, S.L., 763, 764, 776, 777
 Maeda, Y., 505–506, 522
 Magat, E.E., 739, 745
 Magat, M., 203, 227
 Magda, J.J., 640, 641, 644
 Magill, J.H., 537, 596, 713, 714, 717, 744, 745
 Maier, W., 638, 644
 Maklakov, A.J., 360, 381
 Malcolm, G.N., 99, 107
 Mandel, M., 276, 279, 283, 284
 Mandelkern, L., 715, 717, 720, 743, 745
 Marangoni, A., 709, 745
 Marcincin, C.T., 130, 188
 Mark, H., 47, 250, 284, 502
 Mark, H.F., 5, 18, 41, 127, 283, 284, 382, 521, 652, 701,
 761, 776, 885
 Mark, I.T., 502
 Mark, J.E., 3, 5, 127, 187, 188, 225, 226, 244, 283, 284,
 317, 339, 340, 346, 353, 354, 381, 382, 500, 502,
 521, 652, 701, 743, 777, 786, 873
 Marrant, H., 723, 745
 Marrucci, G., 639, 644, 845
 Marshall, I., 815, 818
 Martin, E.R., 817, 853
 Marvin, R.S., 412, 502
 Mascia, L., 863, 864, 873
 Mason, P., 405, 502, 595
 Mason, W.P., 505, 521, 522
 Mathews, A.P., 76, 107
 Matvyeyev, Yu, I., 5
 Maxwell, J.C., 52, 66, 299, 319, 412–18, 420, 432, 505,
 546, 548, 549, 560, 569, 570
 Meier, G., 36, 46
 Meissner, J., 556, 565–8, 573, 596, 597
 Melia, T.P., 111, 123, 127, 128
 Mendelson, R.A., 24, 47, 557
 Merz, E.H., 553, 596
 Metzger, A.P., 24, 46
 Meulenbroek, B., 580, 595, 597
 Michaels, A.S., 661, 663, 669, 702
 Mills, N.J., 24, 47, 557, 597
 Mitra, N.G., 357, 381
 Mitsuishi, Y., 815, 818
 Moldenaers, P., 597, 634, 639, 640, 641, 644
 Mooney, M., 402–404, 502
 Mooy, H.H., 57, 66
 Morton, W.E., 307, 318, 322, 353, 500, 743
 Mosotti, O.F., 64, 67, 320–3, 354

Moynihan, C.T., 152, 188
 Müller, F.H., 354, 815
 Mumford, S.A., 231, 244
 Münstedt, H., 567, 570, 571, 597

N

Nagasawa, M., 276, 283, 644
 Nagasawa, T., 735, 744
 Napper, D.H., 211, 227
 Natarajan, R., 830, 845
 Natta, G., 11, 47
 Nelson, G.L., 370, 380
 Nelson, M.I., 850–1, 853, 873
 Nernst, W., 117, 128
 Ngai, K.L., 147, 187, 188, 500
 Nielsen, L.E., 148, 149, 188, 388, 500, 845
 Nissan, A.H., 230, 244
 Nitschmann, I.T., 811, 818
 Nolle, A.W., 505, 522
 Northolt, M.G., 483, 484, 486, 489–500, 501, 502, 503, 635, 644, 705, 733, 739, 741, 742, 743, 744, 745, 834, 845
 Nutting, P., 436, 502

O

Odijk, T., 279, 284
 Odriozola, M.A., 585, 596
 Ogorkiewicz, R.M., 401, 450, 500, 597, 817, 818, 845
 Ohnesorge, W., 810, 818
 Okui, N., 718, 745
 Oliver, P.H., 631, 885
 Ono, S., 754
 Onogi, S., 581–3, 605, 639, 644
 Onsager, L., 637, 638, 644
 Oosawa, F., 276, 283
 Orwoll, R.A., 103, 107, 202, 226
 Ostwald, Wo, 546, 597
 Osugi, J., 726, 745
 Oth, A., 276, 284
 Ovchinnikov, A., 356, 381
 Owen, M.J., 235, 240, 244
 Owens, D.K., 239, 240, 243, 244
 Oyanagi, Y., 621, 623, 644

P

Pake, G.E., 374, 382
 Pals, D.T.F., 277, 284
 Pan, R., 117, 127, 340, 482, 733, 737
 Panzer, J., 235, 244
 Parker, W.J., 853, 873
 Pascal, P., 64, 67, 357–8, 381, 673, 890, 896
 Paschke, E., 808, 818
 Passaglia, E., 111, 123, 128
 Patterson, D., 203, 227
 Paul, D.R., 684, 686, 687, 689, 701, 702
 Pauling, L., 72, 107
 Pearson, J.R.A., 811, 817, 818
 Pederson, K.O., 280, 284

Pennings, A.J., 705, 731, 733, 738, 739, 745, 746
 Perepechko, I.I., 506, 522
 Perret, R., 731, 744
 Peterlin, A., 33, 34, 47, 745, 818, 729, 814
 Pethrick, R.A., 107, 187, 318, 506, 522
 Pezzin, G., 605, 611, 613, 644
 Phillips, J.W.C., 231, 244
 Piau, J.-M., 578, 596, 817
 Picken, S.J., 187, 502, 586, 587, 588, 597, 636, 638, 640, 641, 643, 644, 740, 745
 Plazek, D.J., 147, 187, 500
 Platzek, P., 479, 502
 Platzer, N.A.J., 37, 46
 Pockels, F., 349, 351, 353
 Pohl, R.W., 297, 318
 Porod, G., 248, 284
 Porter, R.S., 97, 108, 501, 564, 597, 639, 640, 644, 739, 743
 Porteus, J.O., 317, 318
 Pouyet, J., 275, 276, 284
 Powell, P.C., 547, 577, 578, 594, 597, 818
 Prasad, P.N., 36, 46, 354
 Prausnitz, J.M., 5, 102, 107, 127, 226, 227, 761, 203
 Preston, I., 739, 745
 Prevorsek, D.C., 34, 47, 728, 731, 745
 Ptitsyn, O.B., 152, 188

Q

Qian, C., 202, 227
 Qian, T., 696, 702
 Quach, A., 102, 107
 Quayle, O.R., 231, 244

R

Rabinowitz, S., 464, 465, 502
 Raha, S., 869, 870, 871, 873
 Rákoš, M., 360, 381
 Ratajski, E., 724, 744, 746
 Raucher, D., 687, 702
 Rawling, G.D., 880, 885
 Read, B.E., 187, 426, 500, 521
 Reck, B., 182, 188
 Reddish, W., 407, 501
 Redlich, O., 119, 128
 Reed, P.E., 830, 845
 Rehage, G., 130, 131, 150–2, 175, 187, 188, 430, 431, 501
 Reich, L., 776, 777, 786
 Reid, R.C., 3, 4, 5, 127, 227, 761
 Reiner, M., 427, 595, 596, 696
 Reinitzer, F., 34, 47
 Reyes, Z., 327, 353
 Reynolds, J.R., 55, 56, 59, 353, 580, 655, 698, 700
 Rheineck, A.E., 77, 75, 107, 191, 192, 227
 Rice, S.A., 276, 283
 Richardson, S.M., 806, 818
 Richter, L., 36, 46
 Ringsdorf, H., 36, 47, 101, 102, 188
 Rivlin, R.S., 402–404, 502
 Robertson, R.E., 99, 107

Rodriguez, F., 46, 619, 644, 777, 786
 Roe, R.-J., 234, 235, 244
 Rogers, C.E., 674, 681, 682, 689, 702
 Romanov, A., 130, 188
 Rommel, H., 741, 745
 Roos, A., 489, 502, 745
 Rossi, G., 696, 701, 702
 Rossini, F.D., 107, 756, 761
 Roth, S., 341, 344, 347, 353, 354
 Rottink, J.B.H., 589, 597
 Rouse, P.E., 561, 619–21
 Rubinstein, M., 276, 283
 Rudd, J.F., 302, 318
 Rudin, A., 24, 46, 272, 284, 600, 602, 603, 605, 644
 Rusch, K.C., 444, 502
 Ryskin, G.Y., 693, 702

S

Sada, E., 687, 688, 702
 Saechtling, H., 3, 5
 Saeda, S., 24, 47, 563, 597
 Sagalaev, G.V., 223, 227
 Sakai, M., 629, 630, 644
 Sakai, T., 601, 644
 Sakaoku, K., 731, 745
 Sakiades, B.C., 513, 522
 Sakurada, I., 390, 502
 Sakurada, J., 733, 742, 745
 Salame, M., 64, 676–80, 702
 Sanchez, I.C., 103, 107, 743
 Satoh, S., 64, 110–12, 128
 Sauer, B.B., 237, 244
 Saunders, D.W., 305, 318
 Saupe, A., 638, 644
 Sauterey, R., 360, 381
 Sawada, H., 758, 761
 Scatchard, G., 189, 227
 Scheffer, F.E.C., 755, 762
 Schiesinger, W., 29, 47
 Schimpf, M.E., 21, 47
 Schlesinger, W., 705, 745
 Schlichter, W.P., 421, 502
 Schmidt, H.W., 56, 183, 187
 Schmieder, K., 149, 187, 354, 502
 Schmitz, J.V., 826, 827, 845
 Schneider, B., 374, 382
 Schneider, W., 725, 745
 Schnell, G., 149, 187
 Schoenhorn, H., 235, 244
 Schon, J.H., 340, 354
 Schoorl, N., 291, 292, 318
 Schuld, N., 202, 226
 Schultz, J.M., 18, 704, 744
 Schuyer, J., 64, 67, 388, 390, 460, 502, 522, 506, 514
 Schwarzl, F.R., 410, 427, 452, 500, 501, 502, 503
 Scott, L.W., 739, 744
 Scott, R.L., 203, 226, 227, 230, 244, 868
 Sefcik, M.D., 687, 702
 Segal, L., 24, 46, 47, 596
 Seitz, J.T., 187, 450, 503
 Selwood, P.W., 360, 380, 381
 Sessler, G.M., 353
 Shah, B.H., 24, 47
 Shah, Y.T., 811, 818
 Shamov, L., 390, 460, 503
 Shashoua, J., 333, 354
 Shaw, R., 64, 67, 110–12, 128
 Sheehan, W.C., 738, 745
 Sherwood, Th K., 3, 5, 59, 127, 227, 761
 Shibaev, V.P., 35, 46, 187, 354
 Shida, M.J., 46, 563, 596
 Shishido, S., 626, 644
 Shore, J.D., 597, 831, 838, 839
 Sikkema, D.J., 483, 486, 502, 503, 741, 743, 745
 Silverman, J., 388, 522
 Simha, R., 77, 90, 91, 100, 102, 103, 107, 108, 608, 644, 776, 777
 Simmens, S., 307, 318
 Simon, F.E., 151, 188
 Sinclair, D., 834, 845
 Sinha, M., 506, 521
 Slichter, W.P., 374, 381
 Slonimskii, G.L., 72, 73, 108
 Slothers, J.B., 370, 381
 Smirmova, V.N., 636, 644
 Smith, P., 733, 734, 738, 744, 745
 Smith, R.P., 223, 227
 Smith, ThL., 475, 476, 503
 Smolders, C.A., 207, 227
 Smook, J., 736, 737, 745
 Snape, C.E., 376, 382
 Sokolova, T.S., 608, 644
 Somcynsky, T., 103, 108
 Souders, M., 754, 762
 Southern, E., 693, 694, 702
 Spencer, R.S., 90, 100, 103, 107, 108, 222, 223, 227, 548, 597
 Sperling, L.H., 518, 519, 521, 522
 Spevacek, J., 374
 Spizzichino, A., 317
 Spriggs, T.W., 546, 597
 Spruiell, J.E., 815, 818
 Stanford, S.C., 205, 226
 Stannett, V.T., 665, 674, 701, 702
 Starkweather, H.W., 99, 108, 121, 128
 Staudinger, H., 8, 46, 47, 250
 Staverman, A.J., 130, 160, 188, 410, 502, 503
 Stefan, J., 56, 723, 725, 745
 Stein, R.S., 316, 317, 318, 470, 501, 503, 744, 746
 Steiner, K., 717, 702, 746
 Step, E.N., 785, 786
 Stille, J.K., 184, 188
 Stockmayer, W.H., 246, 252, 255, 263, 265, 273, 284
 Strathdee, G.B., 602, 603, 605, 644
 Stratton, R.A., 555, 563, 597
 Straus, S., 763, 776, 777
 Strauss, U.P., 275, 284, 764
 Streeter, D.J., 603, 644
 Strella, S., 333, 334, 354

Struik, L.C.E., 33, 47, 188, 431, 433, 434, 436–42,
501, 503
Stueben, K.C., 864, 873
Suezawa, Y., 872, 873
Sugden, S., 64, 67, 76, 108, 231, 234, 244, 513
Sun, S.F., 21, 47, 284
Sundararajan, P.R., 211, 226
Sundralingham, A., 781, 786
Suzuki, T. L.W., 714, 746
Svedberg, T., 280, 284
Szwarc, M., 674, 702

T

Tabor, D., 455, 503, 837, 840, 844, 845
Tager, A.A., 618, 643, 644
Tait, P.G., 101–103, 108
Takeda, M., 329, 354
Takserman-Krozer, R., 811, 812, 818
Tanford, C., 226, 308, 318, 643
Tanner, R.I., 575, 597
Tatevskii, V.M., 77, 108
Taylor, P.L., 696, 702
Taylor, T.J., 709, 744
Te Nijenhuis, K., 409, 446, 501, 503, 528, 530, 548, 572,
574, 585, 590, 595, 597, 631, 632, 643, 644, 825, 845
Terhune, R.W., 349, 354
Terinzi, J.F., 807, 817
Tewarson, A., 853, 873
Thackray, G., 466, 502
Thakur, M., 338, 354
Thomas, A.G., 693, 694, 702
Thomas, D.A., 518, 522
Thomas, D.P., 24, 47, 557, 558, 559
Thomas, G.D., 754
Thomas, N.L., 696, 762
Thompson, A.B., 815, 818
Tibbetts, S.J., 338, 354
Timmermans, J., 76, 108
Timoshenko, S., 837, 845
Tobolsky, A.V., 90, 99, 107, 108, 391, 393, 397, 433,
442, 443, 479, 501, 502, 503, 618, 619, 644, 746
Tokita, N., 388, 503
Tonelli, A.E., 284, 362, 381
Tordella, J.P., 573, 579, 597
Torrance, J.B., 356, 381
Traube, J., 64, 67, 76, 77, 78, 108, 217
Treloar, L.R.G., 390, 401, 501, 503, 733, 742, 746
Tribout, C., 723, 746
Tsai, S.W., 844, 845
Tschoegl, N.W., 447, 448, 501
Tsvetkov, V.N., 306, 318
Tung, L.H., 22, 46
Turnbull, D., 704, 713, 746

U

Ueberreiter, K., 149, 188, 697–700, 701, 702, 743, 746
Ulich, H., 755, 761, 762
Utracki, L., 608, 644

V

Vaidyanathan, V.I., 357, 381
Van Amerongen, G.J., 660, 661, 662, 695, 702
Van Benschop, H.J., 631, 644
Van den Heuvel, C.J.M., 865, 873
Van der Hout, R., 489, 502, 741, 745
Van der Meer, S.J., 388, 485, 503, 728–30, 746, 880, 885
Van der Vegt, A.K., 470–1, 561, 563, 597, 817, 818
Van der Werff, H., 739, 744, 746
Van der Zwaag, S., 834, 835
Van Dingenen, J.L.J., 738, 746
Van Krevelen, D.W., 22, 24, 46, 64, 65, 67, 77, 101, 108,
132, 188, 191, 197, 198, 212–13, 226, 227, 284, 392,
617, 707, 716
Van Leeuwen, J., 808, 818
Van Nes, K., 61, 66, 67, 108
Van Oss, C.J., 242, 244
Van Saarloos, W., 580, 597
Van Turnhout, J., 330, 331, 353
Van Westen, H.A., 61, 66, 77, 108
Vermant, J., 583, 597, 644
Vieth, W.R., 682, 702
Vincent, P.I., 461, 463, 467, 468, 869–71, 873
Vinogradov, G.V., 305, 318, 556, 595, 597, 619, 644,
802, 803, 818
Voeks, J.F., 225, 227
Vogel, A., 61, 291, 292, 318
Voigt, J., 325, 412–16, 436, 777
Volkenshtein, M.V., 152, 188
Von Falkai, B., 712, 746
Von Helmholtz, H., 55, 67
Vrentas, J.S., 693, 696, 701, 702
Vrij, A., 103, 107

W

Wada, Y., 503, 505, 522, 814, 818
Wagner, M.H., 573, 597
Wales, J.L.S., 24, 47, 300, 305, 318, 595
Walker, L.M., 583, 597, 639, 644
Wall, L.A., 776, 777
Walters, K., 526, 568, 569, 578, 595, 631–4, 643, 644
Warburton Hall, H., 462, 503
Ward, I.M., 455, 464, 465, 489, 502, 503, 705, 739, 743,
744, 745, 746
Warfield, R.W., 103, 107, 117, 118, 128, 368, 390, 396,
460, 501, 503
Waterman, H.I., 422, 539, 596, 777
Watson, J.P., 203
Watson, W.F., 203, 226
Weber, C., 810, 818
Weber, M., 55, 67
Weedon, G., 739, 746
Weeks, J.J., 596, 715
Welsh, W.J., 771, 777, 786
Weir, F.E., 806, 807, 818
Weissenberg, K., 526, 531, 556, 580, 597
Wendt, R.C., 239, 240, 244
Westover, R.F., 545, 597

Weyland, H.G., 64, 67, 130, 484, 503
Whorlow, R., 501, 825, 845
Wibaut, J.P., 292, 318
Wilbourn, A.H., 425, 503
Williams, D.J., 36, 46
Williams, G., 187, 353, 426, 500, 521
Williams, H.L., 24, 46
Williams, M.L., 421, 442, 444, 503, 538, 597
Wilson, C.W., 360, 374, 381, 382
Wilson, K.G., 266, 267, 284
Winding, C.C., 454, 501, 568, 728–9, 732, 811
Windle, A.M., 696, 702
Winter, H.H., 585, 596
Wissbrun, K.F., 584–5, 596, 806, 817
Wolf, B.A., 202, 226
Wolf, K.A., 149, 187, 502
Wolstenholme, A.J., 130, 188
Woodbridge, D.B., 357, 381
Wu, H.F., 499, 503
Wu, S., 234, 235, 237, 238, 240, 244
Wübbenhorst, M., 328
Wunderlich, B., 32, 46, 47, 110, 114, 116, 117, 121, 123,
127, 128, 152, 172, 188, 426, 712, 726, 727, 743,
746, 761

Y

Yaneva, J., 696, 702
Yano, O., 424, 503
Yasuda, K., 547, 597, 625, 644
Yau, W.W., 21, 46, 47
Ye, Y., 560, 785, 786
Young, J., 292, 318
Young, R.L., 425, 426, 431, 500, 872

Z

Zapp, R.L., 841, 845
Zentel, R., 181, 188
Zhurkov, S.N., 693, 702
Ziabicki, A.E., 735, 743, 811, 812
Ziegler, K., 751
Zimm, B.H., 272, 273, 284, 309, 310, 318
Zisman, W.A., 232, 233, 234, 235, 244
Zoller, P., 102, 123, 146, 166, 188
Zwicky, F., 842, 845
Zwijnenburg, A., 731, 738, 745, 746

SUBJECT INDEX

A

Abbe refractometer, 298
Abrasion, 841
 loss factor, 831
 resistance, 831, 881
Absorption, 313
 coefficient, 288
 index, 313
Absorptivity, 288
Acceleration of nucleation, 735
Acoustic
 properties, 505
 wave, 506, 507–508
Activation energy
 of the shift factor, 450
 for transport, 715, 716
 of viscous flow, 792
 volume, 464, 465, 466
Added properties, 797
Additive
 group contributions, 61
 molar functions, 60
 classification, 62
 properties, 60
Additivity, 4
Aesthetic properties, 52, 875
Affinity coefficient, 682
Aging time, 440
Alternating copolymers, 15, 16
Amorphous phase, 32
Andrade's equation, 603, 608
Angle, Brewster, 298
 contact, 232
 phase, 39
Angular frequency, 409
Angular velocity, 280, 527, 528
Anisotropy, 289
Antioxidants, 83, 784, 881
Apparent activation energy of permeation, 656
Apparent paradoxes, Griffith, 842
 Zwicky, 842
Apparent shear rate, 591, 592
Application(s)
 research, 816
 of solubility parameter diagrams, 221
Approach and objective, 3
Aramid, 140
Arc resistance, 352
Arrhenius equation, 751
Article properties, 819
 of textile products, 875

Arylates, 140
Aspect ratio, 844
Atomic contributions, 61
Atomic and structural contributions to the
 parachor, 231
Attainable degree of crystallisation, 718–19
Attenuation, 288, 341
Autoxidation, 782, 783, 784
Average energy of activation, 765

B

Ball indentation hardness, 831, 838
Ballooning, 803
Band and line narrowing, 378
Band theory of electronic conduction, 335, 336
Barrier performance, 656
Barus effect, 526, 803
Basic mechanism of pyrolysis, 771, 772
Basic polymers, 137, 138, 153, 157, 178, 180
Basic volume ratios, 95
Bead-spring model, 619, 620
Beta-relaxation, 172
Biaxial extensional flow, 533
Biaxial shear, 533
Bingham number, 59
Binodal, 211, 212
Bipolarons, 341, 343
Birefringence, 289, 299–300, 304, 307, 479
 of drawn fibres, 307
 flow, 299, 300, 554
 form, 300
 intrinsic, 300
 as a measure of potential reversion and
 warping, 809
 stress, 300
Blobs, 270–1
Block copolymers, 16
Bodenstein number, 59
Bohr magneton, 379
Boiling point, 661
Bond
 dissociation energy, 759, 763–4
 strength and formation free radicals, 490, 881
Bondi rule, 100
Boyer/Spencer rule, 100
Boyle point branched polymers, 247, 657
Branching point, 274
Breaking of the weakest bond, 763–4
Brewster angle, 298
Brinell test, 837
Brittle fracture, 821

- Brittleness, 455
 Brittle temperature, 461, 467–9
 Bulk/Bulkiness, 877
 compliance, 385
 modulus, 385, 395, 396, 405
 Burgers model, 413
- C
- Calculation of the free enthalpy of reaction from
 group contributions, 752
 Calorimetric properties, 109
 Capacity
 electric inductive, 287, 326
 heat, 109, 117
 magnetic inductive, 287, 355
 Capillary moisture transfer, 878
 Carbon residue on pyrolysis (%), 792
 Carreau model, 547
 Case I & II, diffusion, 696
 Case II
 sorption, 696
 transport, 695
 Catalog of group contributions, 61
 Categories of
 dimensionless groups, 55
 physical quantities, 54
 Causes of band and line broadening, 368, 375
 Ceiling temperature, 750
 Chain
 depolymerisation, 763, 767, 769, 771, 776
 modulus, 490
 Characteristic of
 absorption bands, 314
 extension time, 734
 shear time, 734
 Char extension, 754
 Charge-injection doping, 341, 345
 Charpy test, 829
 Char residue on pyrolysis, 774, 775, 856
 Chemical degradation, 779
 Chemical n-doping, 338, 341
 Chemical p-doping, 341
 Chemical shift anisotropy, 376
 Chemical shift, proton, 369
 ¹³C, 367
 Chemical structure, 7
 Chiral, 35, 172
 Chirality of polarised light, 289
 Chronological development of commercial
 polymers, 44
 Circular anisotropy, 289
 Clarity, 313, 316
 Classification of
 composites, 843
 multiple component polymer systems, 36
 polymeric on the basis of mechanical behaviour,
 29
 polymeric liquid crystals, 36
 processes, 799
 sorption isotherms, 681
- Clausius
 Clapeyron equation, 662
 Mosotti relation, 320, 321, 323
 Cloth elasticity, 879
 Clustering, 690, 692
 Coating, 794
 Code symbols for polymers, 938
 Coefficient
 absorption, 288
 diffusion, 604
 extinction, 288
 friction, 831, 841
 permeation, 673
 sedimentation, 604
 stress-optical, 303, 305
 thermal expansion, 97, 223, 791
 Cohesive energy, 189, 190
 density, 189, 190, 791
 Cohesive properties, 189
 Coiled chains and blobs, 270
 Cold drawing, 478, 821
 Cole–Cole plot, 326, 327, 329
 Coleman–Markovitz relationship, 550
 Colligative properties, 57
 Collision diameter of the gas, 669
 Colour
 fastness, 881
 and whiteness, 745
 Comb polymers, 132, 153
 Compensation effect, 667, 668, 752
 Complex modulus, 551
 Compliance(s), 325, 383
 bulk, 385
 creep, 415, 416
 shear, 385
 tensile, 385
 Composite structure of fibres, 33
 Composition parameter, 858
 Comprehensive tables, 858
 Compressibility, 224, 385
 Compressional waves, 390–1
 Compression (bulk) modulus, 514
 Compressive failure, 834
 Compressive strength, 835
 Concept
 of additive group contributions, 4
 “polymer properties”, 49
 “property”, 49
 Conductive polymers, 44
 Conductivity, 319, 332, 333
 electrical, 335
 thermal, 645
 Conductors, 333, 338
 Cone Calorimeter, 853
 Cone and plate rheometer, 533, 554, 580, 584
 Configurations, 8, 11, 15
 Conformations, 8
 Coni-cylindrical flow, 593
 Connectivity index, 117
 Considère

- Considère (*Continued*)
 construction, 462, 463
 plot, 813, 814
 Constant K and the exponent a of the
 Mark-Houwink equation, 255
 Constitutive properties, 60
 Contact angle, 232
 Continuous chain model, 489–90
 Continuous wave NMR, 365
 Contour length, 247, 490
 Controllability, 800
 Control testing of processing conditions, 807
 Convergent flow, 533, 578
 Conversion factors, 891
 Copolymers, 11–16, 37, 170
 alternating, 15, 16
 block, 16
 graft, 16
 random, 15, 16
 Correction of Rabinowitsch, 591
 Correlation
 between dielectric constant and solubility
 parameter, 331
 between electric resistivity and dielectric constant,
 337
 of heat conductivity with crystallinity and density,
 650
 between impact strength (brittleness) and critical
 molecular mass (M_{cr}), 536
 between impact strength and modulus, 832
 between indentation hardness and modulus, 838
 between Izod impact strength and T_p , 833
 of non-Newtonian shear data, 556
 between oxygen index and elementary
 composition, 853
 of permeability data, 674
 between the various molar volumes, 87
 Corresponding states principle, 608
 Cotton-Mouton effect, 299
 Couette
 flow, 527, 528, 529
 geometry, 527
 Counter-ions, 275, 276
 Coupling constants, 371
 Covalent atomic radii, 73
 Covering power, 876–7
 Cox-Merz relationship, 553
 C_p/C_v relationships, 117
 Cracking, 221, 866, 868
 solvent, 867
 Crack-tip, 455
 Crank-shaft mechanism, 425
 Crazing, 456, 820
 solvent, 867
 Creep, 405, 406
 compliance, 415, 416
 failure, 470–1
 rupture, 833–4
 Critical concentration, 279, 605
 Critical molecular mass, 146, 400, 534, 536, 537
 Critical Oxygen Index (COI), 853
 Critical size, 704–705
 Critical spherical nucleus, 710, 711
 Critical strain, 867, 868
 Critical stress energy factor, 474
 Critical surface tension of wetting, 232
 Critical temperature, 655
 Cross-linked polymers, 29
 Cross-linking, 148
 Cross model, 731
 Cross polarisation, 376, 377
 Crystallinity, 728, 732, 815
 Crystallites/Crystallisation, 690, 725
 of rigid macromolecules, 739
 Cyclical chain length, 782
- D**
- Damköhler number, 59
 Damping behaviour, 518
 Dangling ends, 400, 402
 Deborah number, 39, 696, 697, 725
 Debye
 dispersion relation, 326
 equation, 326
 forces, 242
 model, 326, 327
 relaxation, 325
 Decibel, 507
 Decimal fractions and multiples, 889
 Definition of molecular mass averages, 17
 Deformation
 flexural, 825
 plastic, 830
 polarisation, 325
 properties, 824
 uniaxial, 825
 De Gennes
 reptation model, 518
 scaling concepts, 795
 Degradation
 chemical, 779
 hydrolytic, 779, 785
 oxidative, 781
 photochemical, 779
 thermal, 763, 764
 Degree of
 crystallinity, 720, 728, 815
 ionisation, 275, 276, 278
 Dendrimers, 43
 Density, 790, 791
 Depolarisation, 38, 329
 Depropagation, 769
 Derived SI units, 889, 890
 Desirability, 884, 885
 profile for the application, 884
 Determination of the full molecular mass
 distribution, 19
 Diamagnetic, 355
 Dichroism, 289

- Die drawing, 739
- Dielectric, 321
 constant, 287, 321, 791
 loss, 326
 polarisation, 321
 relaxation, 38, 325
 strength, 345
- Die swell, 564, 573, 803
- Diffuse crystallisation zone, 723
- Diffusion/Diffusivity, 280, 663
 coefficient, 663
 of gases, 665
 layer, 697
 of liquids, 693
 of organic vapours, 692
 at room temperature, 668
 of simple gases in polymers, 666
- Dilatational waves, 506
- Dilute polymer solutions, 600
- Dimensionless
 groups of quantities, 55, 565
 process variables, 789
- Dipolar forces, 242
- Dipole moment, 323, 324
- Discotic, 35
- Disentanglements, 707
- Dislocations, 29–31
- Dispersion
 curves, 332
 forces, 205
- Disproportionation, 771
- Dissipation factor, 330
- Dissociation energy of the weakest bond, 764
- Dissolution of polymers, 696
- Distortional waves, 506
- Distribution of molecular mass, 17
- Ditonic system, 66
- Doolittle equation, 621
 n-doping, 338
 p-doping, 338
- Doped conjugated organic polymers, 335
- Double refraction, 289
- Drape, 877
- Drawing, 813, 814
 cold, 478, 815
 hot, 815
 of spun filaments, 728
- Draw ratio, 478
- Driving force, 38, 39
- Drop weight impact strength, 808
- Dryability, 883
- Dry-cleaning, 884
- Dual-mode
 model, 682, 685, 687, 689
 of permeation, 685
 sorption and mobility data, 688
- Dual sorption model, 682
- Ductility, 455–6, 830
- Dullness, 313
- Dynamic laser-light scattering, 20
- Dynamic light scattering (DLSdissipation) factor,
 327, 840
- Dynamic mechanical measurements, 407
- Dynamic modulus, 451, 508
- Dynamic network of blobs, 279
- Dynamic or absolute system of units, 53
- Dynamic shear viscosity, 410
- Dynamictensile viscosity, 410
- Dynamic transitions, 418
- E**
- Ease of care properties, 884
- Effective flow length, 591
- Effect of
 structural groups on properties, 792
 temperature on oxygen index, 853
 temperature on viscosity, 538, 609
- Ehrenfest equations, 150, 152
- Einstein equations, 602
 for suspensions, 251
- Elastica test of Sinclair, 834
 melt, 316
- Elastic effects in polymer melts, 578
- Elastic moduli of some materials, 732
- Elastic parameters, 383, 386, 391
- Elastic shear deformation, 500, 531
- Elastic shear quantities, 556
- Electret, 329, 331
- Electrical conductivity, 319, 335, 337, 339
- Electrical properties, 319
- Electric displacement, 348
- Electric field, 351
- Electric flux density, 348
- Electric inductive capacity, 287, 319, 326
- Electric permittivity, 287
- Electric susceptibility, 348, 349
- Electrochemical
 n-doping, 341
 p-doping, 341
- Electron acceptor, 333
 parameter, 242
- Electron donor, 333, 337
 parameter, 242
- Electron spin resonance (ESR),
 359, 379
- Electrophorus, 329
- Electrostatic interaction, 275
- Elliptic anisotropy, 289
- Ellis model, 547
- Elongation/Elongational, 459
 at break, 454, 475
 flow, 532, 585
 rate, 459
 viscosity, 585
 at yield, 457
- Emeraldine, 344
- End-to-end distances, 246, 248
- End groups, 7, 8
- End of pyrolysis, 765

- Endurance, 820, 829
- End use properties, 819, 847
- Energy
 activation, 421, 537, 609, 656, 693
 cohesive, 190, 191
 of diffusion, 656
 dissociation, 764
 equivalence of light waves, 780
 interfacial, 229, 713
 internal, 190
 surface, 229, 230, 232
- Entanglements, 29
- Enthalpy/Entropy
 elasticity, 402
 as a function of temperature, 123
 of melting of various polymers, 120
 of mixing, 201
- Environmental behaviour and failure, 847
- Environmental decay in liquids, 864
- Environmental shift factors, 872
- Equations
 of conservation, 58
 Hartmann–Haque, 103
 Spencer–Dillon, 548
 of state, 103, 222, 223
 Tait, 101
- Equilibrium
 constant, 751, 753
 spreading pressure, 230
 swelling, 190
- Even/odd effect, 161, 186
- Exaltation, 136
- Excess volume of the glassy state, 94
- Expansion
 coefficient, 246
 factor, 249
- Experimental determination of the molecular mass
 average, 19
- Expressions
 for concentration dependence, 795
 for temperature dependence, 792
 for time dependence, 794
- Extended
 chain crystallisation, 706, 727, 730
 tie molecules, 728
- Extensional deformation of polymer solutions,
 630
- Extensional flow, 530, 532
- Extensional viscosity, 565
- Extensional viscosity of polymer melts, 564
- Extensional wave, 390
- Extensive quantities, 54
- Extinction
 coefficient, 288
 index, 287
- Extinctivity, 288
- Extrudability, 800
- Extrusion, 801
- Eyring model, 465
- F**
- Factors influencing the value
 of T_g , 145
 of T_m , 166
- Failure
 envelope, 475
 maps, 822
 mechanism
 maps, 820
 in polymers, 820
- Falling weight
 impact, 808
 test, 829
- Fanning number, 59
- Fano flow, 632
- Faraday–Verdet effect, 299
- Fatigue, 832
 failure, 469
 life, 832
 limit, 832
 resistance, 832
 tester, 832
- Feed back information, 816
- Ferromagnetic, 355
 polymers, 356
- Fiber-reinforced polymer systems, 38
- Fickian diffusion, 665
- Fick's law, 663, 684
- Field flow fractionation, 20
- Filled polymers, 38
- First normal stress
 coefficient, 545
 difference, 640
- First-order transition, 27, 152
- Flame-retardant additives, 861
- Flammability, 847
- Flashing, 804
- Flash line region, 807
- Flexibility of a chain molecule, 246
- Flexible polymer molecules, 706
- Flexural deformation under constant load, 825
- Flexural formulas, 826
- Flexural rigidity, 877
- Floor temperature, 751
- Flory–Huggins
 interaction parameter, 273
 lattice theory, 201
- Flow
 birefringence, 299, 300, 554
 convergent, 533, 578
 Poiseuille, 529
 simple shear, 528, 531
 unstable, 578
- Fluctuating density, 288
- Fluffing, 881
- Folded chains, 705, 706
 blocks, 728
 lamellae, 704

- Ford equation for the viscosity of a suspension, 602
 Form birefringence, 300
 Formula of Seitz and Balazs, 450
 Fourier
 number, 59
 transform, 361
 Fourier Transform Infrared Spectroscopy, 313
 Fractional free volume, 666
 Fraction amorphous, 679
 Fractionation of chain molecules according to their
 chain length, 727
 Fracture mechanics, 472
 Free enthalpy of formation, 753, 754
 Freely jointed chain model, 247
 Free-rotation model, 246
 Free surface energy, 229
 Free volume fraction, 537
 Freeze-off time, 806
 Freezing-in process, 151
 Frequency
 doubling, 349
 factor, 751
 Frequently used combinations of groups, 141
 Fresnel's relationship, 297
 Friction, 840
 coefficient, 831
 Fringed micelle model, 29
 Fugacity, 756
 coefficient, 756
 Functional structural groups, 129
 Fundamental quantities of mass and volume, 72
 Fundamental viscoelastic phenomena, 406
- G**
- Gas-polymer-matrix model, 687
 Gaussian or random-flight statistics, 246
 Gel layer, 697
 Gel-permeation chromatography (GPC), 19
 Gel-spinning, 730
 Gel-spun yarns, 735
 General correlation of
 aesthetic properties, 876
 maintenance properties, 883
 use (performance) properties, 878
 General description of polymer-penetrant system,
 695
 General expressions, 97
 for the interfacial tension, 239
 Generalised curve for the thermal conductivity, 648
 Generalised failure envelope, 464
 Generalised form of WLF equation, 538
 Generalised melt flow rate diagram, 801
 Generalised stress-strain relationship, 488
 Generalised tensile stress-strain curve, 453, 454
 Generalised ultimate parameters of an elastomer, 476
 Glass-rubber transition, 26, 130
 temperature, 26
- Glass transition
 and compressive strength, 835
 temperature, 167, 426, 611, 669, 791
 of plasticizer (solvent), 611
 polymer solutions, 611
 Glittering, 876
 Graft copolymers, 16
 Griffith's
 equation, 474
 model, 473
 Group contributions/Group increments, molar
 attraction, 191
 char formation/forming tendency, 763, 773
 function, 4, 61
 to molar cohesive energy, 190, 197
 dielectric polarisation, 332
 elastic wave velocity (Rao and Hartmann
 functions), 515
 entropy of melting, 122
 free energy of formation, 704-705
 glass transition, 132
 for combi-groups, 141, 142
 heat capacity, 110
 intrinsic viscosity, 253
 loss area in acoustic waves, 507-508
 mass of structural unit, 73
 melt transition, 153
 for combi-groups, 163
 number of backbone atoms per structural unit,
 63, 253
 optical refraction, 290
 parachor, 231
 permachor, 678
 refraction (Gladstone-Dale, Lorentz-Lorenz,
 Vogel), 292
 thermal decomposition, 767
 Van der Waals volume, 74, 75
 viscosity-temperature function, 543
 volume in amorphous state, 86
 in crystalline state, 85, 86
 in glassy state, 80, 82
 in rubbery state, 77, 79
 to zero-point molar volume, 76
 Group-contribution technique, 4
 Grow rate, 714
 Growth, 703, 704
 Grüneisen
 rule, 391
 Tobolsky rule, 391
 Gyromagnetic ratio, 379
- H**
- H shift, 772
 Hagen-Poiseuille law, 591
 Handle, 747
 indentation, 456, 837
 Mohs, 836-7

- Handle (*Continued*)
 Rockwell, 831
 Shore, 831, 838
- Hardness scales
 for hard and soft materials, 839
- Hartmann
 function, 391
 Hahn condition, 376
 Haque equation, 103
- Heat
 capacities, 109, 117
 of polymers, 112
 of combustion, 852
 distortion, 848
 temperature, 848–9
 fastness, 784
 stability, 847, 848
 transfer coefficient, 645
- Helix conformation, 279
- Hencky strain, 565, 568
- Henry's law, 658, 681
- Hermans' function, 480
 orientation function, 586
- Heterochain polymers, 11, 14
- Heterogeneity, 289
- Heterogeneous nucleation, 710
- Highly crystalline polymers, 647
- High performance polymers, 842
- High power decoupling, 376
- High-pressure crystallisation, 727
- High-resolution NMR, 361, 368
- High-speed stress–strain test, 829
- Hindered Amine Light Stabilisers, 785
- Hoffman-type equation, 717
- Holes, 682, 684
- Homochain polymers, 11, 12
- Homogeneous nucleation, 710
- Homo-polymer, 7
- Hooke
 element, 412
 model, 413
- Horizontal Burning Test, 854
- Hot drawing, 815
- Hoy's system for estimation of the solubility
 parameter and its components, 217
- Huggins
 constant, 600, 601
 equation, 600
- Hydrodynamic
 expansion factor, 251
 liquid layer, 697
 volume, 251
- Hydrogen bonding, 205
 number, 205
 parameter, 869
 tendency, 206
- Hydrolytic degradation, 785
- Hydroperoxides, 783
- Hydrophilic materials, 880
- Hydroplastics, 29
- Hydrostatic compression, 385
- Hydrostatic extrusion, 739
- Hydrostatic pressure, 384
- Hyper-polarisability, 351
 tensor, 351
- Hysteresis in V–T-diagram, 427
- I**
- Ignition, 352
- Immersion technique, 507
- Immobilisation, 682
- Impact
 resistant polymer systems, 38
 strength, 780
- Imperfections, 842
- Increase at the glass transition, 117
- Increments, 4, 137
 see also Group contributions/Group
 increments, molar
- Indentation hardness, 455, 831
- Induced crystallisation, 726, 728
- Induction
 forces, 242
 period, 706, 783
- Inflammation, 852
- Influence
 of entanglements, 625
 on viscosity, 626
 of functional groups on the $Y_m(\text{CH}_2)$ increment,
 158, 159
 of orientation on the properties, 728
 of processing on the ultimate properties, 800
 of symmetry, 186
- Infrared
 absorption, 313
 spectroscopy, 313
- Infra-sonic frequency, 505
- Inherent viscosity, 250
- Initial compliance, 491, 495
- Initial modulus, 485, 490
- Injection moulding, 800
- Inorganic filaments, 742
- Insulators, 335
- Intensive quantities, 54
- Interaction parameter, 201
- Inter-atomic distance, 73
- Interfacial energy properties, 229
- Interfacial free energy, 704–705
- Interfacial tension, 227
 between liquid and solid, 230
 between a solid and a liquid, 232
- Intermolecular interaction, 60
 by hydrogen bonding, 139
- Internal energy, 190
- Internal friction, 464, 840
- Internal pressure, 222, 225, 230
- International System of Units (SI), 53, 889

- Inter-relations of elastic parameters, 386
 Interrelationships
 between static and dynamic viscoelastic functions, 452
 between transport quantities, 281
 Intramolecular blends, 37
 Intramolecular interactions, 60, 140
 Intrinsic birefringence, 300
 Intrinsic flow birefringence, 304
 Intrinsic numerics, 56, 684
 Intrinsic properties, 49, 50, 789
 Intrinsic viscosity, 245, 249, 251
 Intumescent agents, 864
 Ionic strength, 275
 Ironability, 883
 Iso-ionic dilution, 276
 Isokinetic temperature, 752
 Isotherm according to Brunauer, Emmett and Teller, 681
 Izod
 impact strength, 830, 831
 test, 829–30
- K**
- Keesom forces, 242
 Kelley–Bueche equation, 611
 Kerr effect, 299, 349
 Kinetic(s)
 chain length, 776
 of thermal degradation, 776
 Kraemer
 constant, 600
 equation, 600
 Krigbaum equation, 252
 Kuhn-length, 247
- L**
- Lambert's
 law, 288
 relationship, 288, 313
 Lamé constants, 386
 Lamellar structures, 31
 Larmor
 frequency, 362
 precession, 362
 Latent heat of fusion (crystallisation), 118
 Layer thickness, 698, 699
 Length of folds in crystal lamellae, 727
 Lennard-Jones
 equation, 658
 scaling factors, 658
 temperature, 658, 661, 662, 663
 Leslie–Ericksen theory, 585, 587, 641
 Leuco-emeraldine, 345, 346
 Lewis
 acid-base polar interactions, 242
 number, 56
 Lifschitz–Van der Waals (LW) interactions, 242
- Light
 fastness, 784, 878
 refraction, 290
 scattering, 308, 404
 Limiting Oxygen Index (LOI), 486
 Limiting viscosity number, 245, 249, 250
 under Θ -conditions, 253
 Linear coefficient of thermal expansion, 89
 Linear density, 488
 Linear non-thermoplastic polymers, 28
 Linear thermoplastic semicrystalline polymers, 29
 Liquid crystalline polymers, 35, 38, 176, 177, 350, 581, 582, 634
 melts, 581
 Liquid–liquid relaxation, 171
 Local mode relaxation, 170
 Lodge's constitutive equation, 548
 Logarithmic
 decrement, 397
 viscosity number, 250
 London forces, 242
 Longitudinal absorption, 511, 513
 Longitudinal sound velocity, 791
 Longitudinal speed, 505
 Longitudinal waves, 390, 506
 Long-range order, 25
 Long-term
 behaviour, 820
 creep, 415
 stiffness, 25
 Lorentz–Lorenz relation, 321
 Loss
 area, 505
 factor, 326
 modulus, 408–409
 tangent, 326
 Lower critical solution temperature (LCST), 211
 Lower glass transition, 171
 Lustre, 317
 and gloss, 876
 Lyons–Tobolsky equation, 618
 Lyotropic, 35
 Lyotropic liquid-crystalline type, 739
- M**
- McGowan rule, 392
 Mach number, 56
 Macroconformations, 31, 32
 Macro-ions, 275
 Macromolecules, 7
 Magic-angle spinning, 375
 Magnetic critical phenomena, 266
 Magnetic dipole moment, 362
 Magnetic energy levels, 365, 366
 Magnetic field, 299
 intensity, 355
 strength, 355

- Magnetic flux density, 355
Magnetic induction, 355
Magnetic inductive capacity, 287, 355
Magnetic permeability, 287
Magnetic properties, 355
Magnetic resonance, 359
 high resolution, 362, 368
 wide line, 361, 373, 374
Magnetic susceptibility, 355–9, 791
Magnetic tricritical phenomena, 266, 267
Magnetisation, 902
Magnetogyric ratio, 362, 366
Magneto-optic effect, 299
Maier–Saupe mean field theory, 638
Main parameters of spherulitic crystallization, 703
Maintenance or care properties, 51, 882
Mandelkern's equation, 715
 type equation, 717
Mark–Houwink
 constant, K , 603
 equation, 252, 255
 exponent a , 256
Mass magnetic susceptibility, 356
Mass transfer in polymeric systems, 655
Master curve, 713
 of creep compliance, 416
 of the rate of growth of spherulites, 718
 for $\eta_{cr}(T)$, 541
Matrix, 841
 model, 687
Maximum extension ratio, 812
Maximum rate of spherulite growth, 718
Maxwell
 element, 412, 413
 model, 413, 415, 418
 relationship, 319
 Wiechert model, 414, 417
Measurement techniques of the elastic moduli, 388
Mechanical behaviour and failure, 819
Mechanical comfort, 879
Mechanical properties of
 solid polymers, 383
 various materials, 389
Melt/Melting, 167, 700
 elasticity, 316
 expansion, 97
 flow index, 801, 802
 flow rate diagram, 801
 fracture, 578
 number, 579
 strength, 799, 812
Merkel number, 59
Mesogenic groups, 34
 in the main chain, 177
 side-chain, 179
Mesogenic polymers, 172
 see also Liquid crystalline polymers
Mesophases, 34, 172
 see also Liquid crystalline polymers
Metalocene refraction, 43
Method(s)
 of band and line narrowing in the NMR
 spectroscopy, 378
 for expressing the additivity, 61
 of reduced parameters, 609
Micro-voids, 666, 681
Miesowicz viscosities, 586–8
Mode of fracture deformation, 474
Mode I, II, III, 474
Models of viscoelastic behaviours, 412
Modes of deformation, 526
Modulus, 396
 bulk, 395, 405, 447, 514
 complex, 410, 418
 dynamic, 451
 loss, 408
 shear, 384, 400, 489
 and strength of ultradrawn polymers, 733
 tensile, 385, 401, 432, 458
 Young's, 385
Mohs' scale of hardness, 837
Moisture absorption, 878
 and transport, 689–90
Moisture transfer, 877–8
Molar attraction
 component group contributions, 214
 constant, 191
Molar elastic wave functions, 383, 391
Molar free enthalpy of formation, 792
Molar functions, classification, 62
Molar heat
 capacity at constant pressure, 109
 capacity at constant volume, 109
 capacity of solid and liquid polymers at 25°C, 110
 of sorption, 656
Molar loss area, 519
Molar magnetic susceptibility, 63, 356
Molar mass, 73
Molar oxygen demand, 855
Molar permachor, 678, 679
Molar polarisation, 320, 321
Molar quantities, 54
Molar refraction, 291–2
Molar thermal decomposition function, 763, 767
Molar thermal expansivity, 89
Molar viscosity–temperature function, 543
Molar volume (s)
 of crystalline polymers at 298 K, 80
 of fully crystalline polymers at 25°C, 84
 as a function of temperature, 97
 as a function of the Van der Waals volume, 81
 of glassy amorphous polymers at 25°C, 82
 of glassy amorphous polymers, 80
 of organic liquids, 78
 of rubbery amorphous polymers, 79
 of semi-crystalline polymers, 85
Molar water content of polymers, 690
Molecular aggregation number, 216–17
Molecular asymmetry, 167
Molecular composite, 37

Molecular dimensions, 246
 Molecular lattice fitting, 159
 Molecular mass, 17
 critical, 54, 146, 400, 537
 determination, 19
 distribution, 7, 17, 19, 23
 number-average, 17
 viscosity average, 17
 weight-average, 18
 z-average, 18
 Molecular polarisability, 320
 Monodomain, 583
 Mooney engineering stress, 403, 404
 Mooney–Rivlin equation, 402, 403
 Mooney stress, 402
 Morphology/Morphological, 29, 706
 in crystallites, 707
 models, 705
 Mouldability, 799
 index, 799, 806
 Moulding, 799
 area diagram, 804, 807
 Multi angle laser light scattering (SEC/MALLS), 16
 Multiple-component polymer systems, 36, 38
 Multiplet structure, 368

N

Natural draw ratio, 738
 Nature of the glass transition, 151
 Neck/Necking, 463, 728, 813
 zones, 33
 Nematic, 35, 175, 176
 Network
 of intermolecular hydrogen bonds, 139
 polymers, 16
 structure, 148
 Newton/Newtonian
 element, 412
 model, 412
 viscosity, 554
 New viscosity–temperature relationship, 539
 NLO phenomena, 351
 NMR spectroscopy, 375
 Nomenclature of solution viscosity, 250
 Nominal
 strain, 386
 stress, 736
 Non-Fickian diffusion, 696
 Non-functional structural groups, 129
 Non-linear optics, 347
 Non-Newtonian viscosity, 554
 Non-redox doping, 345
 Non-relaxed dielectric constant, 325
 Normal
 force pump, 526
 stress, 529
 coefficient, 526
 difference, 526
 Northolt's equations for well-oriented fibers, 498

Nuclear magnetic resonance (NMR) spectroscopy,
 361, 367, 374
 Nuclear magneton, 364
 Nuclear quadrupole
 moment, 361
 resonance, 361
 Nucleation, 703, 708, 709
 factor, 704
 predetermined, 709
 spontaneous (sporadic), 709
 Number
 average molecular mass, 17
 of nuclei, 711
 of repeating units per effective chain segment, 217
 Numerics, 55
 Nusselt number, 56, 59
 Nutting's formula, 436

O

Odd–even effect, 159
 Onsager rigid-rod model, 637
 Opaque material, 288
 Opaqueness, 313, 316
 Open siphon flow, 526
 Optical activity, 289, 299
 Optical appearance properties, 313, 316
 Optical properties, 287
 Optical rotation, 299
 Orbital angular momentum, 363
 Ordering parameters, 152
 Orientation, 478, 741
 distribution parameter, 479
 parameter, 492
 polarisation, 322
 process, 33
 sensitivity, 800
 Oriented fibres, 478
 Origin of aging, 439
 Osmotic second virial coefficient, 272
 Ostwald–De Waele
 constant, 494
 equation, 546
 Overall
 mechanism of the thermal decomposition, 767
 rate of crystallisation, 706, 708
 Oxidative degradation, 781
 Oxygen index (OI), 853
 and elementary composition, 858
 of polymers, 853
 test, 853

P

Packing, 71
 Parachor, 229
 Paracrystalline
 fibres, 742
 structure, 705
 Paracrystallinity model, 31, 32

- Parallel plates, 527
- Parallel polarised light, 299
- Paramagnetic, 355
- Pardox of Kauzmann, 151
- Partially immobilising sorption, 682
- Partly oriented yarns, 483
- Péclet number, 56, 59
- P-electron conjugation, 140, 161, 183
- Penetrant, 655
- Performance properties, 52
- Permachor, 676
- Permeability, 656, 673, 676
 - coefficient, 656
 - magnetic, 287
 - of polymers, 675
- Permeation
 - coefficient, 673
 - of a more complex nature, 681
 - of simple gases, 656
- Permittivity, 319
- Pernigraniline, 339
- Peroxy radicals, 781
- Perpendicular-polarised light, 299
- Persistence length, 248
- Phase transitions, 25
 - of the first order, 123
- Phenomenology of the thermal decomposition, 765
- Phonon model, 646
- Photochemical degradation, 779
- Photo-doping, 341
- Photooxidation, 781, 783
- Physical ageing, 438
- Physical constants of solvents, 904
- Physical data of simple gases, 657, 658
- Physical properties of polymers, 920
- Physical quantity, 52
- Pilling, 881
 - tester, 881
- Planar extensional flow, 533
- Plane
 - strain, 475
 - stress, 474
- Plastic
 - deformation, 814
 - flow, 837
- Plasticizer, 150
- Pleat and crease retention, 879
- Pleochroism, 289
- Ploughing, 841
- Plunger forward time, 806
- Pockels-effect, 349
- Poiseuille
 - flow, 591
 - number, 59
- Poisson ratio, 383
- Polar forces, 205
- Polarisation, 319
 - flux density, 348
- Polaron, 341
- Polydispersity index Q, 21
- Polydomain, 582
- Polyelectrolytes, 274
 - solution, 275
- Polymer
 - adhesion, 242
 - branched, 16, 273
 - comb, 178, 180
 - cross-linked, 29
 - heterochain, 11, 14
 - homochain, 11, 12
 - liquid crystals, 308
 - network, 16–17
 - rigidity, 400
 - self-reinforcing, 37
 - solvent interaction parameter, 203
 - structure, 8, 303
- Polymeric alloys, 37
 - liquid crystals, 34
 - matrices, 842, *see* Liquid crystalline polymers
- Polysalt, 275
- Power functions, 795
- Power-law
 - equation, 605
 - method, 607
- Practical unit system, 53
- Prandtl number, 56
- Predictions, 3
 - of solvent behaviour, 871
 - of viscosity as a function of shear rate, 561
- Premelting transition (T_{ac}), 171
- Pressure
 - coefficient of viscosity, 544, 545
 - hydrostatic, 385
 - induced crystallisation, 726
 - internal, 222, 223, 225
 - temperature superposition, 442
 - yield, 840
- Primary char, 771
- Primary gas, 771
- Principal solid state ^{13}C NMR techniques, 337
- Pristine, 337–8
- Processability, 800
- Processing
 - conditions, 800
 - properties, 49, 50, 796, 797
- Product or article properties, 49, 796, 797
 - profile, 884
 - method, 884
 - properties, 819, 847
- Properties
 - added, 52, 797
 - aesthetic, 52, 875
 - article, 819
 - colligative, 57
 - deformation, 824
 - end-use, 819
 - intrinsic, 49, 50, 792, 795
 - system-related, 819
 - use, 52, 821
 - of very dilute solutions, 245

Proton chemical shifts, 369
 Pseudo ideal state, 247
 Pulling rod, 810
 Pulsed Fourier Transform NMR, 361
 Pulsed NMR, 365
 Pure shear flow, 533
 Pyrolysis, 765

Q

Quantities
 extensive, 54
 intensive, 54
 molar, 54
 physical, 52
 specific, 54
 Quasi-induction period, 696
 Quasi second-order transition, 130
 Quenching, 712, 722

R

Radius of gyration, 249, 309
 Ram extrusion, 739
 Random
 coil, 29
 statistics, 246
 copolymers, 15
 degradation, 771
 scission, 763, 771
 walk necklace model, 247
 Rao-function, 391, 513, 514
 Rate
 constant, 38
 of cooling, 703
 of crystallisation, 706, 708
 dependence of ultimate strength, 459
 of dissolution, 697
 of elongation, 459, 734
 of growth, 706, 708
 of loss of weight, 765
 of shear, 275
 Rayleigh's ratio, 308
 Real polymer chain, 247
 Recommended values for group contributions to
 standard molar volume, 87
 Recoverable shear, 531, 551
 Recoverable shear strain, 551
 Recrystallisation, 703
 Rectilinear flow, 527
 Redox doping, 341
 Reduced
 intrinsic quantities, 794
 Mark-Houwink equation, 261
 viscosity, 250
 Reference
 time, 794
 values, 789
 of intrinsic properties, 790
 Refinements of the solubility parameter concept, 205
 Reflectance, 297
 coefficient, 297

Reflection, 297
 of light, 297
 Refraction, molar, 291
 Refractive index, 287, 741
 increment, 309
 Regions of viscoelastic behaviour, 398
 Reinforcements/Reinforcing, 841
 geometries of composites, 843
 material, 842
 Relation/Relationship
 between dielectric constant and optical quantities,
 331
 between dielectric polarisability and optical
 dispersion, 331
 between diffusion coefficient and liquid viscosity,
 694
 Relationship of Dupre, 242
 the permeation parameters, 674
 Relation of Williams, Landel and Ferry, 713
 the elastic moduli, 387
 glass transition temperature and melting point
 of polymer, 161
 maximum elongation and Poisson ratio, 458
 morphology and rheology, 584
 T_g , T_m and other transition temperatures, 170
 Relative
 magnetic susceptibility, 355
 scratch resistance, 837
 viscosity, 250
 Relaxation
 phenomena, 38, 331
 time, 39, 414, 424, 734
 time spectrum, 432
 Relaxed dielectric constant, 325
 Repeating units (structural units), 7
 Reptation
 model, 271
 movements, 279
 Residue of pyrolysis, 852
 Resilience, 412
 Resistance
 arc, 352
 fatigue, 832
 scratch, 836
 static charging, 878
 wear, 881, 885
 Resonance, 161
 Response, 39
 coefficient, 39
 Retardation time, 417
 Retention of surface appearance, 881
 Reversion, 808
 test, 808
 Reynolds number, 580, 655, 698
 Rheological behaviour
 of isotropic versus anisotropic melts, 582
 isotropic versus anisotropic solutions, 642
 Rheological constitutive equation, 386
 Rheological properties of polymer solutions,
 459

- Rheological quantities, 548
 Rigidity, 400
 Rigid rodcrystallisation, 706
 Rod climbing effect, 526
 Rod-like molecules, 252
 Rod-like polymer molecules, 274
 Rod-shaped particle, 276
 Rubber elasticity, 401
 Rubbery plateau, 400
 Rudin equations, 272
 Rudin-Strathdee equation, 602
 Rules of thumb for substituting an H-atom by a group X, 182
- S**
- Saturation capacity, 681
 Scaling factor, 676
 Scattering, 316
 coefficient, 288
 crystallisation, 719
 of polymers from the melt, 706
 of light, 308
 of particles, 288
 Schmidt number, 56
 Scratch resistance, 836
 Second Newtonian flow region, 564
 Second normal
 stress coefficient, 531
 stress difference, 531
 Second-order
 susceptibility, 350
 transition, 26, 149
 Second virial coefficient, 309
 Sedimentation, 280
 coefficient, 604
 Segmental anisotropy, 304, 306
 Self-avoiding walks, 269
 Self-diffusion, 694
 Self-reinforcing polymers, 37
 Self-stabilising effects in polymer spinning, 811
 Semi-conductors, 336
 Semi-empirical approach, 4
 Semi-rigid polymer molecules, 706
 Series aggregate model, 486
 Shape retention, 879
 Shaping processes, 799
 Shear, 384
 absorption, 511
 biaxial, 533
 compliance, 385
 critical, 579, 580
 ductility, 456
 moduli of polymers, 392
 modulus, 383, 492
 rate, 627, 800
 simple, 384, 526
 speed, 506
 stress, 465
 viscosity, 525
 waves, 388, 506
 Sherwood number, 56, 59
 Shielding constant, 368
 Shift factor, 443
 Shish kebab structure, 705, 731
 Shore D hardness, 831
 Shore hardness testers, 838
 Short-range order, 25
 Short shots, 804
 line region, 807
 Short-term behaviour, 820
 Short-time stiffness, 25
 Side chain effects, 184
 Significance of the shift factor, 450
 Silky lustre, 876
 Simha/Boyer rule, 100
 Similarities and differences between Y_g and Y_m , 183
 Simple
 extension, 526
 shear, 385, 527
 flow, 528
 Simulation experiments, 816
 Single crystals, 25, 705, 707
 Size-exclusive chromatography (SEC), 16
 Skeletal factor, 246
 Slip-stick motion, 841
 Small angle neutron scattering (SANS), 245
 Smectic, 35, 172
 Smith failure envelope, 475
 Smoke formation, 864
 Snellius law, 291, 297
 Softness, 877
 Soiling, 881
 Solid
 infiltration layer, 671
 state NMR, 361, 376
 swollen layer, 697, 698
 Solitons, 339
 Solubility/Solubilities, 189, 201, 659, 662
 circles, 210
 of crazing fluids, 868
 of gases
 in polymers, 659
 in rubber, 661
 limits, 211
 of lyotropic liquid crystal polymers, 634
 parameter, 189, 190, 200, 867, 884
 and Θ -temperatures, 213
 components, 212
 of simple gases in polymers, 660
 Solvent(s)
 cracking, 867
 crazing, 867
 rigid-rod aromatic polymers, 221–2
 Sonic absorption, 517
 Sonic waves, 505
 Sorption
 behaviour according to Henry's law, 681
 energy, 662
 isotherm according to Langmuir, 681
 isotherm of Flory–Huggins, 681

- Sound
 absorption, 505, 506
 propagation, 506
 speed, 506
 velocity, 506, 514
 Spacers, 177
 Specific bulk modulus, 792
 Specific conductivity, 287
 Specific damping capacity, 411
 Specific entropy of fusion, 791
 Specific expansivity, 791
 Specific heat, 791
 Specific heat capacity at constant pressure, 109
 Specific heat capacity at constant volume, 109
 Specific heat as a function of temperature, 111
 Specific permachor, 676
 Specific quantities, 54
 Specific refraction, 291
 Specific refractive index increment, 791
 Specific shear modulus, 792
 Specific tenacity
 versus initial specific modulus, 482
 versus specific dynamic tensile modulus, 482
 Specific thermal expansivity, 89
 Specific viscosity, 250
 Specific volume, 790
 Spectroscopic splitting factor, 379
 Specular reflectance, 316–17
 Spencer–Dillon equation, 548
 Spencer–Gilmore equation, 103
 Spherulite/Spherulites/Spherulitic, 31, 707, 708
 Spin
 angular momentum, 363–4
 draw ratio, 811
 lattice relaxation time T_1 , 374
 stretch factor, 741
 Spinnability/Spinning, 809
 with high-speed winding, 728
 Spinodal, 211
 Spin-spin
 coupling, 368
 interactions, 370
 relaxation, 372
 time T_2 , 374, 376
 Spiral flow length, 804
 Spiral flow test, 805
 Spiral length, 799
 Spreading
 coefficient, 232
 pressure, 230
 Spriggs' truncated power law model, 546
 Stabilisers, 784
 Stability of fluid threads in melt spinning, 810
 Standard molar volumes at room
 temperature, 76
 Stanton number, 59
 Static charging, 882
 Static electrification, 333
 Staudinger index, 250
 Steady state, 697
 Stefan number, 56
 Steric hindrance, 162, 183, 292
 Stiffness, 395, 730
 factor, 246
 Stockmayer–Fixman equation, 252
 Storage modulus, 408
 Strain, 414
 at break, 480
 hardening, 814
 Stress
 birefringence, 300
 components in simple shear, 530
 induced crystallisation, 726, 728
 multipliers, 455
 optical coefficients, 300, 301, 303, 305
 overshoot, 546
 relaxation, 432, 433
 as a measure of chemical degradation,
 785
 strain behaviour of drawn yarns, 484
 strain curves, 454, 461, 480
 strain diagram, 453
 tensor, 402, 409
 vector, 529, 530
 Stretchability, 813
 Stretch rate, 735
 Structural/Structure
 composites, 38
 groups, 8, 9
 interaction effects, 161
 isomer effects, 184
 model of fibres, 731
 Struik's rules, 437
 Substituent reactions, 763, 771
 Superconductivity, 340–1
 Superconductors, 336
 Supercooled liquid, 151
 Super-cooling, 710
 Super-drawing, 738
 Supersaturation, 709
 Surface
 energy, 230
 solid polymers, 234
 of liquids and melts, 230
 entropy, 237
 friction, 840
 imperfections, 842
 tension, 229, 791
 of liquid, 229
 of solid, 229, 234
 Survey
 of additive molar functions, 62
 of group contributions in additive molar
 quantities, 946
 Susceptibility tensor, 349
 Swelling
 behaviour, 221
 factor, 272
 ratio, 577
 Symbol index, 957
 Systematic processing experiments, 816
 System of dimensionless groups, 59

T

Taber abraser, 841
 Tacticity, 147, 167
 Tait equation, 101
 Telechelic polymers, 8
 Telescopic flow, 528
 Temperature
 coefficient of density, 89
 dependence of solubility, 203
 dependence of viscosity, 537
 Flory, 211, 214
 glass transition, 611, 808
 of half decomposition, 765
 of initial decomposition, 765
 isokinetic, 752
 of maximum crystallisation rate, 718
 of the maximum rate of decomposition, 765
 melting, 709, 711
 ranges of strong ageing, 439
 transition, 170, 383
 Tenacity, 480
 Tensile
 compliance, 383
 creep, 438
 modulus, 457, 458, 489
 strength, 457
 correlated with modulus, 458
 Tension, 455
 Test mould, 803
 for orientation, 808
 Theory of Gibbs and Di-Marcio, 151
 Thermal
 comfort, 877
 conductivity, 645
 decomposition, 763
 degradation, 763
 of polymers, 764
 diffusivity, 806
 end use properties, 847
 expansion, 89
 coefficient, 223, 791
 model of polymers, 90
 expansivity of polymers, 92
 feedback, 851–2
 history, 176
 insulation, 877
 Thermally stimulated discharge (TSD), 329
 oxidation, 779, 781, 783
 Thermochemical properties, 749
 Thermodynamics of free radicals, 758
 Thermoplastic(s), 29
 elastomers, 37
 Thermotropic, 35
 liquid-crystalline type, 739
 liquid crystal polymers, 172
 Thermotropy, 176
 Theta
 solvent, 246
 temperature, 247
 Tie molecules, 34, 729

Time

 dependent effects, 368
 domain NMR, 361
 to failure in a liquid environment, 871
 lag, 665, 684
 temperature equivalence (superposition)
 principle, 447
 Tobolski–Bueche rule, 99
 Torsion/Torsional
 flow, 529
 formulas, 827
 rigidity, 384
 Tortuosity, 679
 Toughness, 829
 Trade names and generic names of polymers, 941
 Transformations of 1st and 2nd order, 131
 Transient
 behaviour, 585
 viscosity, 568
 Transition
 glass–rubber, 26, 27, 130
 (“leathery”) region, 396
 premelting, 171
 second-order, 26, 150
 temperatures, 129, 392
 Translucent/Translucence, 316
 material, 289
 Transmission of light, 289
 Transmittance, 316
 Transparent/Transparency, 316, 876
 material, 291
 Transport
 factor, 704
 properties in dilute polymer solutions, 604
 Transportability, 704
 Transversal sound velocity, 791
 Transverse waves, 506
 Tresca yield criterion, 455
 Triboelectric series, 333
 Triboelectric series of polymers, 334
 Trouton’s
 law, 657
 ratio, 569
 True strain, 386
 Turbidity, 288, 308
 Two-stage super-drawing, 738
 Types
 of mesophases, 35
 of molar properties, 57
 Typology
 of polymers, 7
 of properties, 49

U

Ultimate
 electrical properties, 352
 elongation, 480, 483
 mechanical properties, 453, 457
 strength, 454, 455
 Ultradrawing, 734

Ultra-sonic frequency, 505
 orientation, 478, 728
 Ultraviolet absorber, 780
 Uniaxial
 deformation under constant load, 825
 extension, 385
 flow, 569
 flow, 532
 Unified theory of crystallisation processes, 706
 Unit of a physical quantity, 53
 Unperturbed random-coil macromolecule, 248
 Unperturbed state, 246
 Unperturbed viscosity coefficient, 791
 Unstable flow, 578
 Unzipping, 769
 Upper critical solution temperature (UCST), 211
 Upper glass transition, 171
 Use or performance properties, 877
 UV absorbers, 784

V

Vacuum forming, 799
 Values of fundamental constants, 903
 Values of increments in Hoy's system (1985) for the
 molar attraction function, 217
 Van der Waals'
 law, 657
 radius, 72
 volumes of structural units and structural groups,
 73
 VanKrevelen–Hoftijzer viscosity–temperature
 relationship, 539
 Van't Hoff equation, 751
 Velocities of sound waves, 390
 Velocity gradient, 526
 Vertical Burning Test, 854
 Vicat softening temperature, 849
 Vickers hardness test, 837
 Viscoelasticity, 405
 Viscoelastic properties of polymer solutions, 619
 Viscosity
 average molecular mass, 18
 of concentrated polymer solutions, 599, 605
 extensional, 564
 as a function of shear rate, 545
 inherent, 250
 intrinsic, 245, 249, 253
 limiting, 249, 250, 253, 255
 Newtonian, 533
 number, 245
 of polymer solutions, 547
 ratio, 250
 reduced, 250
 relative, 250
 shear, 525
 specific, 250, 618
 temperature gradient, 645
 Vitrification process, 151
 Voigt element, 416
 Voigt model, 413, 415, 436

Volume
 imperfections, 842
 magnetic susceptibility, 355
 relaxation, 80
 resistivity, 336
 retardation, 427
 temperature diagram of a liquid
 crystal polymer, 175
 Volumetric properties, 71
 Von Mises yield criterion, 455

W

Wagner's constitutive equation, 572
 Warping, 808
 Washability, 882
 Water sorption, 690
 Wave number, 288
 Wear, 819
 Weber number, 59
 Wedge-flow, 574
 Weight-average molecular mass, 18
 Weissenberg
 effect, 526
 number, 57, 556
 Wet fastness, 881
 Wide-line NMR, 368, 373, 374
 WLF
 equation, 421
 formulation, 714, 715
 function, 715
 shift factor, 421
 Work
 factor, 715
 function, 334
 hardening, 454, 455
 Wormlike chain model, 248
 Wrinkle
 fastness, 879–80
 recovery, 879–80

X

X-ray diffraction, 479

Y

Yarn elasticity, 879
 Yarns wound at various speeds, 732
 Yasuda, Armstrong Cohen model, 547
 Y_g and Y_m increments of some important
 mesogenic and linking functional groups, 179
 Yield/Yielding, 455, 463
 behaviour, 462
 point, 462
 stress, 455
 Young's modulus, 401

Z

Z-average molecular mass, 18
 Zero point molar volume, 76
 Zimm plot, 310

"The end of a matter is better than its beginning."

Ecclesiastes 7:8