<table>
<tr><th colspan="6">Anexa-Tabel-Baza de date sticle teluritice (documentatie)</th></tr>
<tr><th>Nr.</th><th>Compozitie sticla</th><th>Metoda de obtinere sticla</th><th>Caracterizari sticla</th><th>Aplicatii sticla</th><th>Referinta bibliografica</th></tr>
<tr><td>1</td><td>$60B_2O_3$-$10TeO_2$-$5TiO_2$-$25R_2O$ (R= Li, Na & K)</td><td>Conventional melt quenching method.</td><td>XRD, Dielectric measurements (100 Hz-1MHz, RT-350℃), The real and imaginary parts of the complex impedance terms of all glass samples were measured as the function of temperature and frequency.</td><td>-</td><td>S. Sripada, Study of Dielectric Relaxation in $60B_2O_3$ – $10TeO_2$ - $5TiO_2$ - $25R_2O$ (R= Li, Na & K) Quaternary Glass System, Int. Journal of Engineering Research and Applications Vol. 4, Issue 1(Version 3), January 2014, pp.136-140</td></tr>
<tr><td>2</td><td>(70-x)TeO_2-$15B_2O_3$-$15P_2O_5$-xLi_2O, x = 5, 10, 15, 20, 25 & 30 mol%</td><td>Precursors: TeO_2, P_2O_5, B_2O_3, and Li_2O, in 99.99 % purity; electric furnace held at 350℃ for 1 h; electric furnace open to the atmosphere T preadjusted at 800℃ (stirred with an alumina rod) for 1 h; Then the melt was poured into two mild steel split mould heated to 200℃; transferred to an electric furnace held at 300℃ for 5 h; the furnace was switched off and the sample let to be annealed and cooled slowly to room temperature.</td><td>XRD, Density (Archimedes method), FTIR, DTA (RT - 500℃, 10 ℃/min.)</td><td>-</td><td>A.H. Khafagy, A.A. El-Adawy, A.A. Higazy, S. El-Rabaie, A.S. Eid, The glass transition temperature and infrared absorption spectra of: (70-x)TeO_2 + $15B_2O_3$ + $15P_2O_5$ + xLi_2O glasses, Journal of Non-Crystalline Solids 354 (2008) 1460–1466</td></tr>
<tr><td>3</td><td>xMnO-(100-x)[P_2O_5-TeO_2] system, with $0 \le x \le 50$ mol%</td><td>Precursors: $(NH_4)_2HPO_4$, TeO_2 and $MnCO_3$; Sintered corundum crucibles at 950℃ for 10 minutes; The melts were poured onto stainless steel plates.</td><td>FTIR (KBr pellet technique)</td><td>-</td><td>I. Ardelean, C. Horea, FTIR spectroscopic investigations of MnO-P_2O_5-TeO_2 glasses, Journal of Optoelectronics and Advanced Materials Vol. 8, No. 3, June 2006, p. 1111 - 1113</td></tr>
<tr><td>4</td><td>TeO_2-P_2O_5</td><td>Precursors: P_2O_5 & TeO_2 (99.99% purity); Heated at 300℃ ~ for 1 h and then transferred to a second furnace held at 800℃ ~ for 45 min.; The melt was cast into a cylindrically shaped split-mould of mild steel; The glass was annealed at 300℃ ~ for 1 h; Finally, the furnace was switched off and the glass allowed to cool in situ for 24 h.</td><td>A.c. electrical conductivity measurements. (as a function of frequency & as a function of temperature)</td><td>-</td><td>M. M. Elkholy, A.c. conductivity for amorphous TeO_2-P_2O_5 glass system, Journal of Materials Science: Materials in Electronics 5 (1994) 157-162</td></tr>
<tr><td>5</td><td>V_2O_5-P_2O_5-TeO_2</td><td>Melted at 900°C for 1 h in a platinum crucible in a conventional electric furnace. The melts were quenched by pouring onto a stainless steel plate at 150°C. The obtained glass samples were then annealed to remove the residual thermal strain before any subsequent examination;
<table>
<tr><th>Glass</th><th colspan="3">Composition (mol %)</th><th>Melt treatment</th><th>Annealing treatment</th></tr>
<tr><td></td><td>V2O5</td><td>P2O5</td><td>TeO2</td><td></td><td></td></tr>
<tr><td>A</td><td>57</td><td>7</td><td>36</td><td>900°C-1 h</td><td>260°C-2 h</td></tr>
<tr><td>B</td><td>57</td><td>20</td><td>23</td><td>900°C-1 h</td><td>290°C-2 h</td></tr>
<tr><td>C</td><td>57</td><td>32</td><td>11</td><td>900°C-1 h</td><td>320°C-2 h</td></tr>
</table></td><td>Thermal expansion, FT-IR and the KBr tablet method with glass powders, Density(using Archimedes principle)</td><td>-</td><td>T. Naito, A. Matsuda, D. Shiojiri, T. Aoyagi, Y. Sawai, T. Fujieda, S. Tachizono, K. Yoshimura, Y. Hashiba and M. Yoshimoto, Influence of P_2O_5/TeO_2 composition ratio on the physical properties of V_2O_5–P_2O_5–TeO_2 glasses for lead-free low-temperature sealing, Journal of the Ceramic Society of Japan 121 [5] 452-456 2013</td></tr>
<tr><td>6</td><td>TeO_2-B_2O_3-MoO_3-ZnO-R_2O (R = Li, Na, si K)/MO (M = Mg, Ca, si Pb)</td><td>The conventional melt quench method; Precursors: TeO_2 (99.995%), B_2O_3 (99.98%), MoO_3 (99.97%), ZnO (99.99%), Li_2CO_3 (99.99%), Na_2CO_3 (99.5%), K_2CO_3 (≥99%), MgO (99.99%), anhydrous CaO (≥99.99%), and PbO (≥99%); Heated in an electric furnace for melting at 930℃ for 30 min. The homogeneous melts were subsequently poured onto a stainless steel plate and then quickly pressed with another steel plate. The internal stress induced in the glasses during the melt quenching was released by annealing the samples below glass transition temperature at 300℃ for 5 h in air and then allowed to cool slowly to room temperature</td><td>Thickness of the glasses was measured by screw gauge. Density (the buoyancy method based on the Archimedes principle). An Abbe refractometer was used to measure the refractive indices of the glasses. XRD, SEM, EDX, ATR-FTIR, Raman (0-3800 cm^{-1}, 532nm, 10mW), DSC (RT-1000℃, 10℃/min, N_2 high purity), UV-Vis-NIR (200-800 nm, 2nm resolution)</td><td>Are promising low phonon hosts for rare earth elements doping that can become potential candidates for the development of solid-state lasers, optical fibers, and optical displays</td><td>G. Lakshminarayana, Kawa M. Kaky, S.O. Baki, A. Lira, Priyanka Nayar, I.V. Kityk, M.A. Mahdi, Physical, structural, thermal, and optical spectroscopy studies of TeO_2-B_2O_3-MoO_3-ZnO-R_2O (R = Li, Na, and K)/MO (M = Mg, Ca, and Pb) glasses, Journal of Alloys and Compounds 690 (2017) 799-816</td></tr>
<tr><td>7</td><td>(90-x)TeO_2–$10Bi_2O_3$–</td><td>Standard melt-quench method; Precursors: TeO_2 , Na_2CO_3, Bi_2O_3 ,</td><td>Thermo-Rheological Property</td><td>-</td><td>B. Tincher, J. Massera, L. Petit, K.</td></tr>
</table>

	xZnO with x = 15, 17.5, & 20 (TBZ glasses); $80TeO_2$–(20-y)Na_2O–yZnO system with y = 0, 5, & 10 (TNZ glasses)	and ZnO (99% purity); Melted for 1 hour in a platinum crucible in an open-air furnace at temperatures between 800–850℃ (actual melting temperature within this range depended on the glass composition); Each melt containing Na_2CO_3 was subjected to an hour isothermal hold at 450℃ to allow the batch to undergo calcination; After quenching, the glasses were annealed for 15 h at 30℃ below the glass transition temperature of the glasses	Characterization, Raman (532nm laser, resolution 2µm)		Richardson, Viscosity properties of tellurite-based glasses, Materials Research Bulletin 45 (2010) 1861–1865
8	(100−x)[0.5ZnO–$0.5P_2O_5$]–xTeO_2 & 50ZnO–(50−y)P_2O_5–yTeO_2 where x = 0–60 &y = 0–40 mol% TeO_2	Precursors: ZnO, TeO_2 and H_3PO_4; The homogenized starting mixtures were slowly heated up to 600℃ (2 h) and then melted during 30 min at temperatures ranging from 900 to 1250℃ depending on the sample composition; The melts were occasionally stirred and then poured into graphite mould and annealed for 30 min at a temperature of 5℃ below their glass transition temperature, Tg, to improve their mechanical properties	DSC (10℃/min, N2 flow), XRD, Thermodilatometry (3℃/min, 25cN compression force)	-	P. Mošner, K.Vosejpková, L. Koudelka, Thermal properties and stability of TeO_2 containing phosphate glasses, Thermochimica Acta 522 (2011) 155– 160
9	xZnO−(1−x)TeO_2 where (0 ≤ x ≤ 0.50) & yAl_2O_3−(1−y)TeO_2 where (0 ≤ y ≤0.03)	Intermittent quenching technique (IQ-technique); Precursors: TeO_2 (99.99%) and ZnO (99.9%); For the preparation of Al_2O_3-TeO_2 glass: preheated in an electric furnace at 200°C for 2 h. T of the furnace was then increased at a rate 50°C/min until it reached 900°C, and kept for 30 min. For the preparation of Al_2O_3-TeO_2 glass: preheated in Pt crucibles in an electric furnace at 400°C for 2 h, and then melted for 1 h at 800–950°C depending on composition; Quenching the melts between a preheated copper mold and a preheated steel plate (it was found that preheating at ca. 300°C both metal plates used for quenching is necessary to prevent cracking of glass specimens); After quenching, the glass samples were left to cool down slowly to room temperature, and then annealed for 24 h at about 40°C below T_g to remove residual stresses.	XRD, DSC (RT-700℃, 10℃/min, 40℃/min), Density (Archimedes principle), Raman (514.5 nm laser Ar, resolution 2 cm^{-1}, power density 0,10 mW/$µm^2$)	These results could lead to developing new glasses with interesting applications based on the flexible zinc-tellurite glass matrix.	N.S. Tagiara, D. Palles, E.D. Simandiras, V. Psycharis, A. Kyritsis, E.I. Kamitsos, Synthesis, thermal and structural properties of pure TeO2 glass and zinc-tellurite glasses, Journal of Non-Crystalline Solids 457 (2017) 116–125
10	$70TeO_2$–$_5$MxOy–$10P_2O_5$–10ZnO–$5PbF_2$ in mol%, where MxOy = MgO, SrO, PbO, CdO,	Conventional melt-quenching method; Before melting, raw materials were preheated at 200, 300, and then 400℃ (to eliminate or minimize components such as water, hydroxyl, and carbonyl groups, respectively, already present in the raw materials); Heated in a melting furnace to a temperature of 850℃ for 30 min; The melt was poured out onto a graphite mold; Subsequently, the sample was transferred to an annealing furnace and kept for 2 h at 320℃ (below T_g -15℃); Then, the furnace was switched off and the glass sample was allowed to cool	DSC (Pt crucibles, 10℃/min, RT-1100℃, N_2), XRD (RT, 0,008 steps 3°-75°, 205 s /step), SEM		M. Reben, El Sayed Yousef, I. Grelowska, M. Kosmal, M. Szumera, Influence of modifiers on the thermal characteristic of glasses of the TeO_2–P_2O_5–ZnO–PbF_2 system, Journal of Thermal Analysis and Calorimetry (2016), Vol. 125 Issue 3, p1279-1286, DOI 10.1007/s10973-016-5421-y
11	50ZnO–$10TeO_2$–$50P_2O_5$	Conventional melt-quenching technique; Precursors: ZnO, TeO_2 and P_2O_5; Melted at 800°C, 1000°C, 1200°C for 20min, respectively. Melts were poured onto a stainless steel and the volatilization losses were checked by weighting to confirm that actual glass composition was close to the batch	UV-Vis-NIR, Raman (532 nm), Spectrofluorometry (808 & 980 nm diode laser)	Thanks to the broadband NIR emission and a lifetime of tens of microseconds of the Te-doped zinc phosphate glass, this glass may be promising materials for fabricating broadband optical amplifiers or tunable lasers.	Q. Chen, F. Zhang, Z. Chen, J. Qiu, Near-infrared luminescence property of Te-doped zinc phosphate glasses, Journal of Non-Crystalline Solids 458 (2017) 76–79
12	(70-x)TeO_2-(10)ZnO-(10)WO_3-(5)Na_2O-(5)TiO_2-(x)Bi_2O_3 (x = 1, 2, 3, 4, & 5 mol%)	Melt-quenching process; Precursors: TeO_2, WO_3, ZnO, TiO_2, Na_2CO_3, and Bi_2O_3 (99.9% purity); Electric furnace using alumina crucible at 930℃ for 30 min; the melts were poured on clear stainless steel surface to cool to room temperature quickly (to avoid any crystallization); Furnace for annealing at 300℃ for 5 h, to release any internal stress that could occur during the glass melting process; After the annealing procedure completed, cooling down gradually to ambient temperature	XRD (CuKα (λ = 1.542 Å), 20 mA, 40 kV, 10°-80° with 2°/min), SEM, EDAX, FTIR (400-4000 cm^{-1}, 4 cm^{-1} resolution), Raman (532nm Nd:YAG laser, 0-1500 cm^{-1}), DSC (RT-1000℃, 10K/min), TGA, UV-Vis (200-800 nm, 1 nm resolution)	Optical fiber amplifier applications	K.M. Kaky, G. Lakshminarayana, S.O. Baki, I.V. Kityk, Y.H. Taufiq-Yap, M.A. Mahdi, Structural, thermal and optical absorption features of heavy metal oxides doped tellurite rich glasses, Results in Physics 7 (2017) 166–174

13	(100−x)[0.5ZnO–0.1B_2O_3–0.4P_2O_5]–xTeO_2, x = 0–80 mol% TeO_2	Precursors: ZnO, TeO_2, H_3BO_3 and H_3PO_4; Heated slowly to 950–1250℃ in a Pt crucible covered with a lid; The melt was held at maximum temperature for 30 min and then cooled slowly in a graphite mold; Obtained glasses were annealed for 30 min at a temperature 5K below their glass transition temperature, T_g.	XRD, Density (Archimedes method), Chemical durability, DSC (10K/min, N_2), Raman (514,5 nm laser Ar, 5mW power, 100 s, spectral slit 1,5 cm^{-1}), FTIR (400-4000 cm^{-1}, 2 cm^{-1} resolution, 32 steps, KBr), ^{31}P MAS NMR (14 kHz, 2,5 µs(pi/4)), ^{11}B MAS NMR (18,8 T, 20 kHz)	-	P. Mošner, K. Vosejpková, L. Koudelka, L. Montagne, B. Revel, Structure and properties of ZnO–B_2O_3–P_2O_5–TeO_2 glasses, Materials Chemistry and Physics 124 (2010) 732–737
14	(100-x)[0.5ZnO–0.1B_2O_3–0.4P_2O_5]–xTeO_2 (B_2O_3/P_2O_5 = 10/40)	Conventional melt-quenching method; Precursors: ZnO, TeO_2, H_3BO_3 and H_3PO_4; were slowly calcined up to 600℃ for 2 h to remove water. After the calcinations, the reaction mixtures were heated up to 900–1250℃ in a Pt crucible covered with a lid, followed by mixing and homogenization for 30 min. The melts were cooled by pouring into a graphite mold in air. Obtained glasses were annealed for 30 min at a temperature 5℃ below their glass transition temperature to improve their mechanical properties. The final products were stored over silica gel in a desiccator.	DSC (RT-1000℃, 10℃/min, N_2), Thermal dilatometry (5℃/min, 25 cN), XRD	-	P. Mošner, K. Vosejpková, L. Koudelka, L. Benes, Thermal studies of ZnO–B_2O_3–P_2O_5–TeO_2 glasses, J Therm Anal Calorim (2012) 107:1129–1135
15	(100-x)[0.5ZnO-0.5P_2O_5]-xTeO_2 (X-series) and 50ZnO-(50-y)P_2O_5-yTeO_2 (Y-series) within the concentration range of x=0-60 and y=0-40 mol% TeO_2	Precursors: ZnO, TeO_2 and H_3PO_4; Slowly heated up to 600°C (2 h) and then melted during 30 min at temperature ranging from 900 to 1250°C depending on composition. The melts were occasionally stirred and then poured into graphite mold and annealed 5°C below their glass transition temperature, T_g.	^{31}P MAS NMR (9.8 T, 14 kHz, 2,5 µs(pi/4)), Raman (514.5 nm laser Ar, 5mW power, 100 s, spectral slit 1,5 cm^{-1}), Density (Archimedes method), DSC (10℃/min, N_2)	-	P. Mošner, K. Vosejpková, L. Koudelka, L. Montagne, B. Revel, Structure and properties of glasses in ZnO–P_2O_5–TeO_2 system, Journal of Non-Crystalline Solids 357 (2011) 2648–2652
16	(1-x)(TeO2)-x(PbO), x = 0, 0.10, 0.15, 0.20, 0.25, 0.30 mol%	Melt quenching method; Precursors: TeO_2 and PbO (99.99% purity); Preheated in a crucible (alumina crucible) at 280℃ for 1 h in an electric furnace. The preheated crucible was then moved to another electrical furnace and kept for 1 h at a temperature 850–900℃; The molten mixture then turned into a cylindrically shaped stainless steel split mold preheated at 280℃. After the quenching process, the solidified sample was then annealed at 280℃ for 1 h to avoid the mechanical strain developed during the quenching process and then the solidified glass is allowed to cool down to the room temperature	XRD (4° to 90°), EDX, Density, FTIR 400–4000 cm^{-1}, 0.85 cm^{-1} resolution, KBr pellet technique), UV-Vis (220-800 nm)	-	S.H. Elazoumi, H.A.A. Sidek, Y.S. Rammah, R. El-Mallawany, M.K. Halimah, K.A. Matori, M.H.M. Zaid, Effect of PbO on optical properties of tellurite glass, Results in Physics 8 (2018) 16–25
17	WO_3 (up to 10 mol%) and P_2O_5 (up to 16 mol%) in TeO_2–BaO–SrO–Nb_2O_5 (TBSN) glass system	Conventional casting technique; Precursors: TeO_2, $SrCO_3$, Nb_2O_5, WO_3 (99.9%), $BaCO_3$ and P_2O_5 (99%); Melted in a platinum crucible at 900–1000℃ for 20 min using an electrical furnace under oxy-nitrogen atmosphere. The melt was then quenched onto a preheated copper plate at 350℃ and subsequently annealed at this temperature for 10 h to release the thermal stresses developed during quenching; Apart of the melt was quenched to room temperature and kept without annealing for thermal measurements	DSC (30–900℃ , 10 ℃/min, N_2); The refractive indices of the glasses were measured by the prism coupling method (Metricon 2010, USA) at four wavelengths, 633, 974, 1320, and 1544 nm, at accuracy better than ±0.001; UV-Vis-NIR (200–3300 nm spectral range. The wavelength accuracy was ±0.8 nm in the UV– VIS range and ±0.32 nm in the NIR range); Raman (25–1700 cm^{-1}, solid state laser at 532 nm with power of ~100 mW)	They are promising candidates for fiber Raman amplifiers in photonics systems	R. Jose, T. Suzuki, Y. Ohishi, Thermal and optical properties of TeO_2–BaO–SrO–Nb_2O_5 based glasses: New broadband Raman gain media, Journal of Non-Crystalline Solids 352 (2006) 5564–5571
Magneto optice					
18	25PbO–50$BiO_{1,5}$–25$GaO_{1,5}$, 25PbO–30$BiO_{1,5}$–45GeO_2, 60TeO_2–30WO_3–10PbO and 57TeO_2–30WO_3–10PbO–3La_2O_3	Lead-bismuth glasses synthesis carried out in platinum crucibles in an electric furnace at the temperature about 1100ºC. The melts was poured out into a cast iron form and then relief annealed. Tellurite glasses have been obtained by melting 100 g batches in a gold crucibles in an electric furnace at the temperature 850ºC in air atmosphere. The melts were poured out into a steel form. The glasses prepared in such manner was thermoannealed at 350ºC for 12 hours.	Verdet constant	Materials for magneto-optical devices.	E. Golis, M. Reben, Investigations of oxide glasses with use of Faraday effect method, Visnyk Lviv Univ.Ser. Physics. 2009. Is. 43. P. 99–102

<table>
<tr><td>19</td><td>TeO_2–WO_3–PbO–La_2O_3 system</td><td>Precursors: TeO_2, WO_3, PbO and La_2O_3; Electric furnace at the temperature 850°C in air atmosphere. The melts were poured out into a steel form. The glasses prepared in such a manner were thermoannealed at 350 °C for 12 hours.
<table>
<tr><td>Glass</td><td colspan="4">Composition (mol %)</td></tr>
<tr><td></td><td>TeO_2</td><td>WO_3</td><td>PbO</td><td>La_2O_3</td></tr>
<tr><td>0</td><td>60</td><td>30</td><td>10</td><td>-</td></tr>
<tr><td>A</td><td>59</td><td>30</td><td>10</td><td>1</td></tr>
<tr><td>B</td><td>58</td><td>30</td><td>10</td><td>2</td></tr>
<tr><td>C</td><td>57</td><td>30</td><td>10</td><td>3</td></tr>
</table></td><td>XRD, DTA/DSC (platinum crucible, 10℃/min, RT-1000℃, N_2 atmosphere), Density (method of hydrostatic weighing), Faraday effect</td><td>Electrochemical and optoelectronic devices. Infrared fibers or windows.</td><td>E. P. Golis, M. Reben, J. Wasylak, J. Filipecki, Investigations of tellurite glasses for optoelectronics devices, Optica Applicata, Vol. XXXVIII, No. 1, 2008</td></tr>
<tr><td>20</td><td>TeO_2-BaO-ZnO (TBZ) and PbO-Ga_2O_3-Bi_2O_3 (PBG)</td><td>Melting small 100 and 200g TBZ glass compositions in uncontrolled air atmosphere. One test melt composition (PbBiGa1) did not include tellurium. Compositions were initially batched, melted and fined in-situ in Pt^0 crucibles and later in Au^0/Pt^0 crucibles.</td><td>DSC (20, 5 and 1℃/min)</td><td>TBZ - suitable for the fabrication of various high quality optical components such as widows, lenses and fiber optics;
PBG - amorphous material's extreme brittleness made it ill-suited for the manufacture of fiber optics.</td><td>B. Zhou, C. F. Rapp, J. K. Driver, M. J. Myers, J. D. Myers, J. Goldstein, R. Utano, S. Gupta, Development of tellurium oxide and lead-bismuth oxide glasses for mid-wave infra-red transmission optics,</td></tr>
<tr><td>21</td><td>72TeO_2-20ZnO-8Na_2O (TZN1), 70TeO_2-20ZnO-10Na_2O (TZN2)</td><td>Melt-quenching method;</td><td>Verdet Constant</td><td>manufacture of fiber</td><td>Y. Shiyu, J. Lousteau, M. Olivero, M. Merlo, N. Boetti, S. Abrate, Q. Chen, Q. Chen, and D. Milanese, Analysis of Faraday effect in multimode tellurite glass optical fiber for magneto-optical sensing and monitoring applications, Applied Optics, vol. 51 n. 19, pp. 4542-4546 (2012)</td></tr>
<tr><td>22</td><td>TeO_2–ZnO–Na_2O–BaO (TZNB)</td><td>Melt-quenching method; Precursors: TeO_2, ZnO, Na_2O and BaO (purity 99.9 %); melting temperatures ranging from 800 to 1100℃ (depends on different glass compositions) for 1 h and were cast on a 300℃ preheated brass plate followed with annealing at Tg+10℃ for 2 h; The fiber preform can be fabricated using the modified rod-in-tube technique;</td><td>DSC (10℃/min, N_2), Refractive index (prism coupling method), SEM, Verdet constants;</td><td>manufacture of fiber</td><td>Q. Chen, H. Wang, Q. Wang, Q. Chen, Faraday rotation influence factors in tellurite-based glass and fibers, Appl. Phys. A (2015) 120:1001–1010</td></tr>
<tr><td colspan="6">Bibliografie INFLPR</td></tr>
<tr><td>23</td><td>TeFD5</td><td>-</td><td>Measurements were made of its figures of merit, photoelastic constants, frequency dependence of acoustic absorption coefficients, and the effect of temperature on sound-wave velocities.</td><td>-</td><td>T. Yano, A. Fukumoto, and A. Watanabe, Tellurite Glass: A New Acousto-Optic Material, Journal of Applied Physics 42, 3674 (1971); doi: 10.1063/1.1659667</td></tr>
<tr><td>24</td><td>xM_2O − (1 − x)TeO_2 (M: alkali oxide)
0.65Tl_2O-0.35TeO_2</td><td>Precursors: TeO_2, Tl_2O; Furnace preheated to 800 ◦C and kept at this temperature for a time appropriate for achieving complete fusion of the material. The homogenized bubble-free melt was then cooled at a rate of 20 ◦C/min to a temperature of 700 ◦C and the resulting viscous melt was quenched by dipping the crucible into cold water or liquid nitrogen. The obtained materialwas annealed in a second furnace at around 300 ◦C for one hour and subsequently allowed to cool at room temperature.</td><td>XRD, Raman (532 nm, 100 mW, 2 cm^{-1} resolution),</td><td>-</td><td>A. G. Kalampounias, G. Tsilomelekis, and S. Boghosian, Glass-forming ability of TeO_2 and temperature induced changes on the structure of the glassy, supercooled, and molten states, The Journal of Chemical Physics 142, 154503 (2015); doi: 10.1063/1.4917536</td></tr>
<tr><td>25</td><td>TeO_2-BaO-Na_2O (TBN) and TeO_2-BaO-WO_3 (TBW)</td><td>Precursors: TeO2, BaO, Na2O and WO3; furnace at the temperature 850℃ in air atmosphere. The crucible was covered with a platinum plate to avoid vaporization losses. The melt was poured onto a steel plate, which was preheated to 340℃, forming a layer thickness of 2-5</td><td>XRD, Raman (532 nm, 10 mW), DSC (10℃/min, RT-1100℃, N_2), Ellipsometry (190-1700 nm), UV-Vis-NIR</td><td>-</td><td>I. Grelowska, M. Rebena, B. Burtan, M. Sitarz, J. Cisowski, El Sayed Yousef, A. Knapik, M. Dudek, Structural and optical study</td></tr>
</table>

		mm, then annealed in the temperature range 310-350 ℃.			of telluriteebarium glasses, Journal of Molecular Structure 1126 (2016) 219-225
26	$80TeO_2$–$5TiO_2$–(15−x) WO_3–xA_nO_m where A_nO_m is Nb_2O_5, Nd_2O_3 and Er_2O_3, x = 0.01, 1, 3 and 5 mol% for Nb_2O_5 and x = 0.01, 0.1, 1, 3, 5 and 7 mol% for Nd_2O_3 and Er_2O_3	-	TEM, Refractive index measurements, Ultraviolet absorption spectra measurements (UV)	-	R. El-Mallawany, M. Dirar Abdalla, I. Abbas Ahmed, New tellurite glass: Optical properties, Materials Chemistry and Physics 109 (2008) 291–296
27	$75TeO_2$–15ZnO–(10–x)Nb_2O_5–xGd_2O_3, where(x=0.0, 0.5, 1.0, 1.5, 2.0 and 2.5 mol%)	Melt quenching technique;	UV-Vis-NIR (500-3800 nm); FTIR (350-4000 cm^{-1})	-	N. Elkhoshkhany, Rafik Abbas, R. El-Mallawany, A.J.Fraih, Optical Properties of quaternary TeO_2–ZnO–Nb_2O_5–Gd_2O_3 glasses, Ceramics International 40 (2014) 14477–14481
28	$17SeO_2$-$50TeO_2$-$32MoO_3$-$1La_2O_3$ (wt.%).	In order to avoid SeO_2 sublimation, the melting was performed in an autoclave at increased oxygen pressure P = 35–36 MPa and temperature up to 650℃ in silica crucibles. The samples were held for 20 min at this temperature and then cooled slowly at the rate of 2–2.5℃/min. The obtained glass was sliced and polished to a thickness of 1 mm for optical measurements. The glass was heat-treated at 300℃ in a N_2 + H_2 (80%) gas flow for 4 and 12 h exposure times.	XRD, SEM, DTA, UV-Vis, XPS, IR, EPR	-	A. Bachvarova-Nedelcheva, R. Iordanova, K.L. Kostov, St. Yordanov, V. Ganev, Structure and properties of a non-traditional glass containing TeO_2, SeO_2 and MoO_3, Optical Materials 34 (2012) 1781–1787
29	SeO_2, TeO_2, MoO_3, V_2O_5 and Nb_2O_5	In order to avoid SeO_2 sublimation, the melting was performed in an autoclave at increased oxygen pressure P = 35–36 MPa and temperature up to 650℃ in silica crucibles. The samples were held for 20 min at this temperature and then cooled slowly at the rate of 2–2.5℃/min. The obtained glasses were polished to a thickness of 3 mm for optical measurements. Both samples were heat-treated at 300℃ in a N^2 + H^2 (80%) gas flow for 4 and 12 h exposure times	XRD, SEM, DTA, UV-Vis, XPS, IR, EPR	-	A. Bachvarova-Nedelcheva, R. Iordanova, K.L. Kostov, V. Ganev, St. Yordanov, Synthesis, characterization and optical properties of non-traditional tellurite–selenite glasses, Optical Materials 36 (2014) 1319–1328
30	(100-4x)TeO_2-$2xBi_2O_3$-$xGeO_2$-xLi_2O, where x is in the range 2.5-10 mol%; 90:5:2.5:2.5, 80:10:5:5 and 60:20:10:10 mol%	Melted in a furnace at 920℃ for 50-60 min. After reaching 920℃ the crucible was shaken every 15 min in order to achieve material homogeneity. The glasses were obtained by conventional meltquenching method. The high-temperature melt was poured onto a stainless steel plate preheated at 160-170℃ and allowed to relax at this temperature for 12 h in a separate furnace. The furnace was then switched off and the samples were allowed to cool down to RT.	DTA (20-850℃, 20℃/min, air flow 30 ml/min), XRD (10-90°, step 0.02°/s), UV-Vis, Laser Ablation inductively coupled plasma mass spectrometry (LA-ICP-MS), SEM, TEM, Raman	-	L. Dimowa, I. Piroeva, S. Atanasova-Vladimirova, N. Petrova, V. Ganev, R. Titorenkova, G. Yankov, T. Petrov, B. L. Shivachev, Synthesis, structural, thermal and optical properties of TeO_2-Bi_2O_3-GeO_2-Li_2O glasses, Optical Materials 60 (2016) 577-583
31	[ZnO]x $[(TeO_2)_{0.7}$-$(PbO)_{0.3}]_{1-x}$ with x=0.15, 0.17, 0.20, 0.22 and 0.25 mol %	Melt quenching technique; preheated in a crucible (alumina) at 280°C for one hour in the electric furnace; the crucible was then transferred to the another electrical furnace for 1 h at a temperature 850–900°C. The mixture melt then turned into a stainless steel cylindrical shaped split stainless steel mould that has been preheated. After the process of quenching, the solid sample of glass was annealed at 280°C for an hour to avoid the mechanical strain developed during the process of quenching and then left to cool down to ambient temperature	XRD, FTIR (280–4000 cm^{-1}) and UV-Vis (200–800 nm), Optical band gap and refractive index were calculated for every glass sample, Density of glass, molar volume and oxygen packing density (OPD) were obtained	-	S. H. Alazoumi, S. A.l Aziz, R. El-Mallawany, U. Sa'ad Aliyu, H. M. Kamari, M. H. M. M. Zaid, K. A. Matori, A. Ushah, Optical properties of zinc lead tellurite glasses, Results in Physics 9 (2018) 1371–1376
32	$73TeO_2$–20ZnO–$5Na_2O$–$2La_2O_3$ (TZNL glass)	All glasses were melted in a two-step process. First, the glass batch was melted at a temperature T_1 for a time t_1 until all raw materials	Optical absorption spectroscopy and scanning confocal fluorescence microscopy.	-	H. Ebendorff-Heidepriem, Y. Ruan, H. Ji, A. D. Greentree, B. C.

		were completely molten. Then the temperature was set to the doping temperature T_2, ND powder was added to the hot melt and the melt with ND dwelled in the furnace at T_2 for a time t_2. Finally, the ND doped melt was cast into a preheated brass mould, annealed at ~T_g (315°C for TZNL) and slowly cooled down to room temperature. For the ND-doped glasses, short t_2 of 10-20 min (except for C2 and E1b) was used to minimize ND oxidation while allowing sufficient time for homogenization of the ND in the glass melt (see reference for data)			Gibson, and T. M. Monro, Nanodiamond in tellurite glass Part I: origin of loss in nanodiamond-doped glass
33	(ZnO) (TeO_2)1− (where = 0 to 0.4 with an interval of 0.05 mole fraction)	Conventional melt cast-quenching technique;	XRD, Density (Archimedes method), Dilatometry, DTA, Ultrasonic velocity measurements.	-	H. A. A. Sidek, S. Rosmawati, B. Z. Azmi, and A. H. Shaari, Effect of ZnO on the Thermal Properties of Tellurite Glass, Advances in Condensed Matter Physics, Volume 2013, Article ID 783207, 6 pages http://dx.doi.org/10.1155/2013/783207
34	TeO_2–WO_3–PbO–La_2O_3 system	Electric furnace at temperature of 850°C in air atmosphere. The crucibles were covered with a platinum plate to avoid vaporization losses. The melts were poured out onto a steel plate forming a layer thickness of 2 to 5 mm, then annealed in the temperature range of 320–340°C for 12 h.	Ellipsometry (190-1700 nm), UV-Vis-NIR (190-2500 nm)	-	B. Burtan, M. Reben, J. Cisowski, J. Wasylak, N. Nosidlak, J. Jaglarz and B. Jarzabek, Influence of Rare Earth Ions on the Optical Properties of Tellurite Glass, Acta Physica Polonica A, Vol. 120 (2011) No. 4
35	75TeO_2-xB_2O_3-(25-x)Li_2O and 80TeO_2-xB_2O_3-(20-x)Li_2O where, x = 5, 10 and 15 mol%	The powdered mixture was then contained in a Platinum crucible and melted in an electrically heated furnace under ordinary atmospheric condition at temperature depending upon the composition of each sample. These temperatures ranged between 950 and 1050℃. Better homogeneity of the melt was achieved by removing the crucible from the furnace and swirling several times. The melt was then cast onto preheated stainless-steel mold and was transferred immediately to the annealing furnace adjusted at 270℃ for 1h. The furnace was switched off and the glass samples were allowed to cool inside until it reached the room temperature.	DSC, UV-Vis, Density, molar volume and packing density	-	N. Elkhoshkhany, R.El-Mallawany, Optical and kinetics parameters of lithium boro-tellurite glasses, Ceramics International 41 (2015) 3561–3567
36	80(TeO_2)-5(TiO_2)-(15-x)(WO_3)-(x)A_nO_m, where A_nO_m oxide are Nb_2O_5 or Nd_2O_3 or Er_2O_3 and x = 5 mol%.	Melt quenching technique;	Density and Molar volume, Ultrasonic velocity measurements (longitudinal and shear)	-	R. El-Mallawany, H. Afifi, Elastic moduli and crosslinking of some tellurite glass systems, Materials Chemistry and Physics 143 (2013) 11-14
37	$[(TeO_2)_{65}(B_2O_3)_{35}]y[Ag_2O]_y$ with y = 10, 15, 20, 25, 30 mol%	The crucible was covered with a lid and then put inside an electric furnace set at 400°C. The mixture was maintained at 400°C for 30 min, the crucible was then transferred to another furnace for 60 min at 800°C. The crucible was constantly stirred in order to obtain a homogeneous melt. The melt was then poured into a stainless steel, cylindrically shaped split mould which had been preheated, and then the sample was annealed at 350°C.	UV-Vis (200-800 nm), Density, XRD	-	M.K. Halimah, W.M. Daud, H.A.A. Sidek, A.W. Zaidan, A.S. Zainal, Optical properties of ternary tellurite glasses, Materials Science-Poland, Vol. 28, No. 1, 2010
38	75TeO_2-20ZnO-5Na_2O (TZN-75) and 80TeO_2-10ZnO-10Na_2O (TZN-80); 78TeO_2-12ZnO-10Na_2O	Conventional melting-quenching techniques;	DTA, Refractive index,	By modulating the core size and therefore changing the mode area, different applications in the infrared wavelength range can be explored in the future.	A. Lin, A. Zhang, E. J. Bushong, and J. Toulouse, Solid-core tellurite glass fiber for infrared and nonlinear applications, Optics Express 16721, 2009 / Vol. 17, No. 19
39	TeO2, ZnO, MgO and	The raw materials were melted at 900°C in a gold crucibleand cast	DSC, Linear and nonlinear refractive index	optical fiber fabrication	S. Manning, H. Ebendorff-

	BaO. Na2O	into preheated brass moulds. The glass melting was performed under an ambient air atmosphere. The samples were then annealed at approximately 5°C below the transition temperature for 4 hours and cooled to room temperature at a rate of 0.1°C/min	measurements, Raman		Heidepriem, and T. M. Monro, Ternary tellurite glasses for the fabrication of nonlinear optical fibres, Optical Materials Express 152, 2012 / Vol. 2, No. 2
40	(100−x)[0.5CaO–0.1B_2O_3–0.4P_2O_5]–xTeO_2 where x = 0–30 mol% TeO_2	Heating slowly the reaction mixture up to 1200–1300°C in a covered Pt crucible. After 15 min reaction and mixing, the obtained melt was cooled by pouring into a graphite mould to form a suitable glass block. Prepared glasses were annealed for 30 min at a temperature of 5°C below their glass transition temperature and then slowly cooled to room temperature to improve their mechanical properties.	XRD, DTA, Density, Molar volume, Raman	-	P. Mošner, M. Vorokhta, and L. Koudelka, Structure and Properties of TeO_2 Containing Calcium Borophosphate Glasses, Advanced Science, Engineering and Medicine Vol. 5, pp. 1–6, 2013
41	80TeO_2–5TiO_2–(15-x)WO_3-xA_nO_m where A_nO_m is Nb_2O_5, Nd_2O_3, and Er_2O_3, x = 0.01, 1, 3, and 5 mol% for Nb_2O_5 and x = 0.01, 0.1, 1, 3, 5, and 7 mol% for Nd_2O_3 and Er_2O_3	Melt quenching; In order to reduce any tendency of volatilization the mixture was kept at 300°C for 15 min. Depending upon the batch material the temperature was set in the range of 750–850°C, the melt was left in this range for 30 min to assure complete melt of the constituents and it was stirred a few times to improve the homogeneity. The melt which had a high viscosity, was then cast at room temperature in a stainless steel mold of dimension 1 x 1 x 1 cm^3. Subsequently, the sample was transferred to an annealing furnace and kept for 1 h at 300°C. Then the furnace was switched off and the glass sample was allowed to cool inside for 24 h.	DSC, Density.	-	R. El-Mallawany, I. Abbas Ahmed, Thermal properties of multicomponent tellurite glass, J Mater Sci (2008) 43:5131–5138, DOI 10.1007/s10853-008-2737-4
42	75TeO_2–15ZnO–(10-x)Nb_2O_5–xGd_2O_3 (x=0.0, 0.5,1.0,1.5,2.0,2.5mol%)	Melt quenching technique at 800–950°C.	XRD, Ultrasonic velocity measurements (longitudinal and shear),	-	N. Elkhoshkhany, R. Abbas, M.S.Gaafar, R El-Mallawany, Elastic properties of quaternary TeO_2–ZnO–Nb_2O_5–Gd_2O_3 glasses, Ceramics International 41 (2015) 9862–9866
43	(20-x)Li_2O–80TeO_2–xWO_3 TL (x = 0 mol%), TLW5 (x = 5 mol%), and TLW10 (x = 10 mol%)	The mixture was melted in a platinum crucible using an electric furnace at 800°C for TL glass and at 850°C to the other two glasses for 30 min. The molten material was poured onto pre-heated brass mold and was immediately placed in other furnace for annealing. The samples were annealed at 200°C for TL and 250°C for TLW5 and TLW10 glasses during 2 h. These samples will be cited in the text as-quenched.	DSC, XRD, Johnson–Mehl–Avrami-Kolmogorov (JMAK) theory was used to determine the Avrami exponent (n)	-	S. M. Sidel, F. A. Santos, V. O. Gordo, E. Idalgo, A. A. Monteiro, J. C. S. Moraes, K. Yukimitu, Avrami exponent of crystallization in tellurite glasses, J Therm Anal Calorim (2011) 106:613–618, DOI 10.1007/s10973-011-1312-4
44	(60-x)B_2O_3−xTeO_2-10ZnO-30Li_2O with x=0, 5, 10, 15, and 20 mol%	Conventional melt quenching technique; Mixture is kept in the muffle furnace which is at 950°C for 30 minutes. Now the mixture is melt and it is stirred to get the homogeneity. It is poured on the metal plate at 150°C then quenched and pressed with a metal rod. Transparent glass is formed and it is annealed at 300°C in the furnace to remove thermal strains for 12 hours.	XRD, Density, Oxygen packing density (OPD), UV-Vis-NIR, FTIR	-	P. Naresh, D. Srinivasu, N. Narsimlu, Ch. Srinivas, B. Kavitha, Uday Deshpandhe, and K. Siva Kumar, Triple modifier effect on physical, optical and structural properties of boro tellurite zinc lithium glasses, AIP Conference Proceedings 1953, 090079 (2018); doi: 10.1063/1.5032926
45	V_2O_5–B_2O_3–TeO_2 system (63 compositions)	Conventional melting method; The batcheswere heated to 480°C, held for 10 min, labeled the melting temperature of 63 points, until all the samples melted. The frits were heated at 900°C for an hour and then annealed at 300°C by pouring the melts onto a cylindrical shaped graphite mould (45 mm length and 7 mm diameter). The remaining melts were quenched into distilled water, dried 12 h at 8045°C	XRD, DTA	-	F. Wang, J. Dai, L. Shi, X. Huang, C. Zhang, X. Li, L. Wang, Investigation of the melting characteristic, forming regularity and thermal behavior in lead-free V_2O_5–B_2O_3–TeO_2 low temperature sealing glass, Materials Letters 67 (2012) 196–198
46	(90-	Conventional melt cast-quenching technique; muffle furnace at	XRD, Density, Oxygen packing density	Antibacterial effect	N. Elkhoshkhany, Ali Reda, Amira

	x)TeO_2−5CaO−5Na_2O-xV_2O_5 where x = 5, 10, 15 and 20 mol%	(800–850°C) for 25 min to obtain a homogeneously mixed melt. During melting, the melt was manually stirred by swirling to get free of gas bubbles and obtaining homogeneity. The melt was rapidly quenched by pouring it into a preheated stainless-steel mold. Then, samples annealed at 250°C for 2 h, after that slowly cooled down to room temperature to relieve the mechanical strains.	(OPD), UV-Vis, DTA, Antibacterial activity, Statistical analysis, pH measurements.		M. Embaby, Preparation and study of optical, thermal, and antibacterial properties of vanadate–tellurite glass, Ceramics International 43 (2017) 15635–15644
47	$(TeO_2)_{1-x}$−$(ZnO)_x$ where x = 10-40 mol%	Melt quenching method; preheated at 400°C followed by annealing in the first furnace at 350°C for 1 h, after which the furnace was switched off and the glass was allowed to cool in situ for 24 h.	DTA, XRD, Ultrasonic velocity measurements.	-	S. Rosmawati, H. A. A. Sidek, A. T. Zainal and H. Mohd Zobir, Effect of zinc on the physical properties of tellurite glass, Journal of Applied Sciences 8(10): 1956-1961, 2008
48	70KNN-30TeO_2 mol% doped with 1 mol% of Er_2O_3, (KNN = potassium sodium niobate) sau 30KNN-70TeO_2 (mol%) doped with 1 mol% of Er2O3	Melting-quenching method; Thecomponents were mixed in a platinum crucible and subsequently melted at 800°C for 30 min (A), 800°C for 60 min (B), 900°C for 30 min (C) and 900°C for 60 min (D) and then quenched between stainless steel plates. The quenched glass was immediately annealed in another electric furnace for 2 hours to release their stress.	DTA, XRD, SEM, Dielectrics Property.	-	P. Yongsiri, P. Mhuangthong, A. Munpakdee & K. Pengpat (2014) Preparation of Potassium Sodium Niobate in Tellurite Glass System Doped with Er_2O_3 ,Ferroelectrics, 459:1, 153-159, DOI: 10.1080/00150193.2013.849512
49	70KNN–30SiO_2 and 80KNN–20SiO_2 (mol%) doped with 0.5–1.0 mol% of Er_2O_3 was prepared using incorporation method	The components were mixed in a platinum crucible and subsequently melted at 1300°C for 15 min and then quenched between stainless steel plates. The quenched glass was immediately annealed at approximately 350°C for 2 h to release their stress.	XRD, FE-SEM, TEM, Dielectric constant & loss, Density, UV-Vis-NIR, DTA	-	P. Yongsiri, S. Sirisoonthorn, K. Pengpat, Effect of Er_2O_3 dopant on electrical and optical properties of potassium sodium niobate silicate glass-ceramics, Materials Research Bulletin 69 (2015) 84–91
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