Exhibit 9

U.S. Patent No. 7,867,557

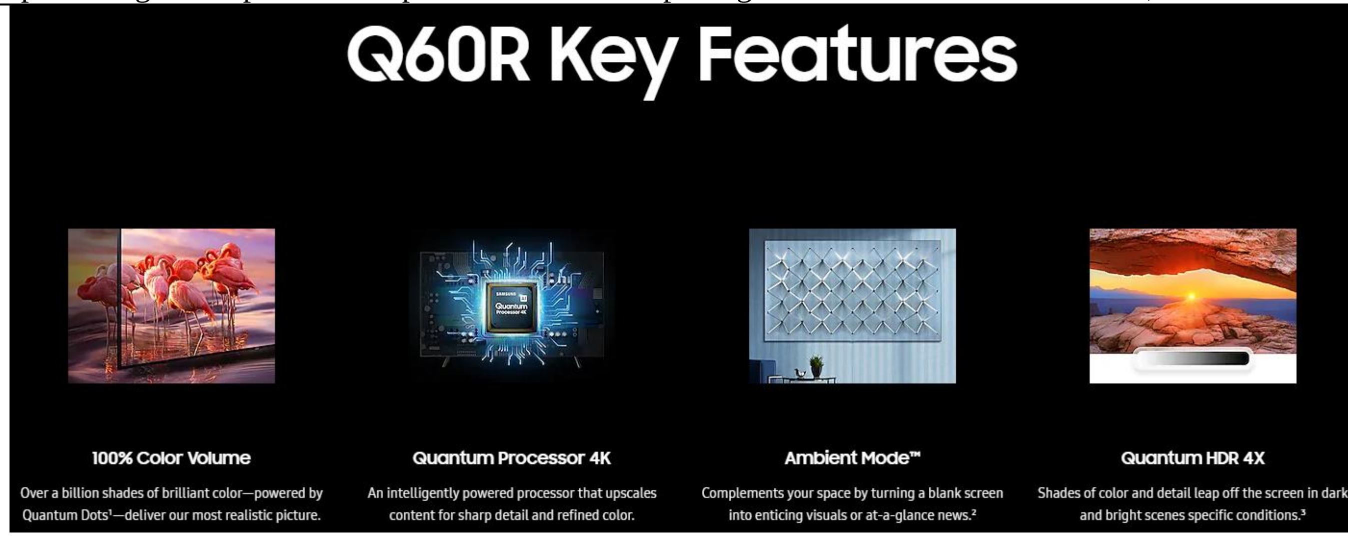
1. A method for producing a nanoparticle comprised of a core comprising a core semiconductor material,	The Samsung Q60R QLED TV is an exemplary LED TV (the "Samsung TV") that includes nanoparticles.  For example, the Samsung TV includes quantum dots (the "Samsung Quantum Dots")[1].

[1] Upon information and belief, all Samsung QLED TVs listed in Exhibit 6 include the same Quantum Dots. For example, Samsung QLED TV's display stack includes a Blue LED and layer of Quantum Dots in a Quantum Dot Layer.

See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (SAIT, Samsung Electronics), Quantum Dot Forum 2018 Presentation at Slides 11, 16.
see also e.g., https://www.techradar.com/news/samsung-qled-samsungs-latest-television-acronym-explained;
see also e.g., https://www.samsung.com/global/tv/blog/stained-glass-and-quantum-dot-technology/;
see also e.g., https://www.displaydaily.com/article/display-daily/future-of-quantum-dot-display-niche-or-mainstream;
see also e.g., https://www.techradar.com/news/samsung-qled-samsungs-latest-television-acronym-explained.

Samsung's QD-OLED TV displays operate in substantially the same way in that they are comprised of a Blue OLED and Quantum Dot layer.

See e.g., https://www.cnet.com/news/samsung-reportedly-working-on-quantum-dot-oled-tv-hybrid/.



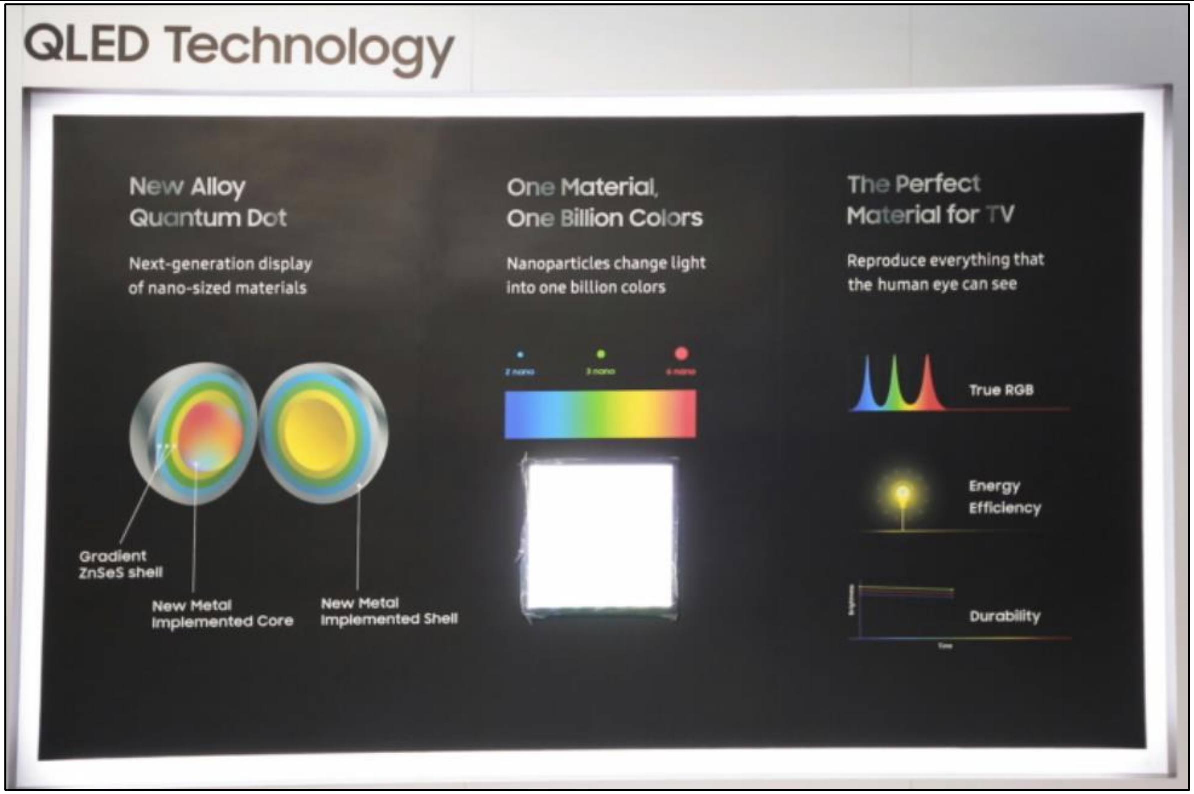
See e.g., https://www.samsung.com/us/televisions-home-theater/tvs/qled-4k-tvs/43-class-q60-qled-smart-4k-uhd-tv-2019-qn43q60rafxza/.

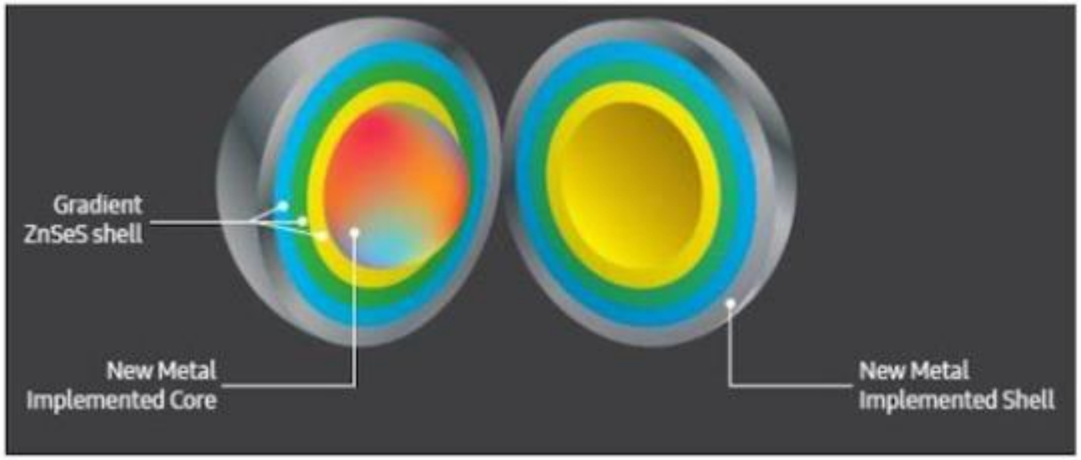
Quantum Dots

QLED displays true colors (over a billion shades to be exact), even in the brightest scenes with 100% Color Volume.[1] So whether you're watching survival shows that take place on secluded beaches or nature documentaries that explore every corner of the planet, you'll experience rich cinematic views that will make you feel like you're there.

See e.g., https://www.samsung.com/us/televisions-home-theater/tvs/qled-tv/technology/.

The Samsung Quantum Dots used in the Samsung TV are nanoparticles.

	 *See e.g.*, https://news.samsung.com/global/how-qled-achieves-excellence-in-picture-quality; *See also e.g.*, https://www.hitechcentury.com/samsungs-next-gen-qled-tv-showcased-at-sea-forum-2017/;



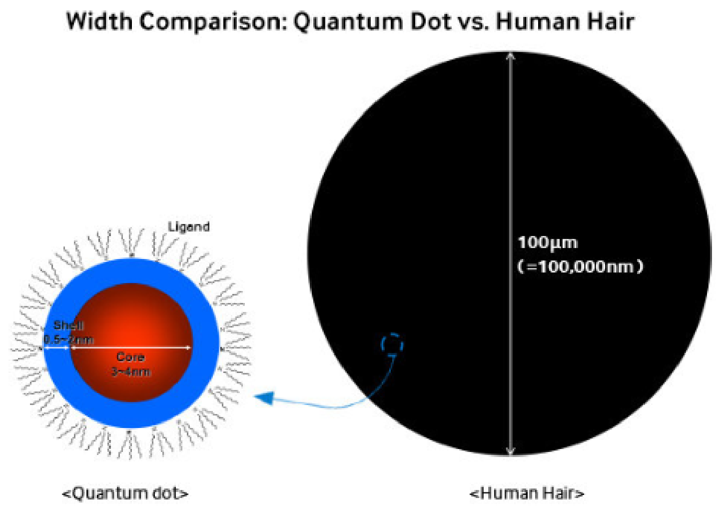
A diagram showing the unique Quantum Dot design Samsung is using in its 2017 QLED TVs.
PHOTO: SAMSUNG

See e.g., https://www.forbes.com/sites/johnarcher/2017/09/19/what-is-qled-and-why-does-it-matter/#732982817fb3.

"1. A method for producing a nanoparticle comprised of a core comprising a core semiconductor material,"

What Is 'Quantum Dot?'

Quantum dots are nano-sized crystals made of semiconductor materials. A nanometer (nm) is one billionth of a meter, which means these extra-small particles are smaller than 1/10,000 of a single strand of human hair.*



Quantum dots can be made of different kinds of elements, but when they're regulated down to a size small enough, they possess physical properties that make them suitable for many different applications. For example, quantum dots are very efficient in absorbing and then emitting light. Based on this quality, quantum dots are being researched in areas such as solar panels, bioimaging, and, of course, display.

See e.g., https://news.samsung.com/za/why-are-quantum-dot-displays-so-good.

"1. A method for producing a nanoparticle comprised of a core comprising a core semiconductor material,"

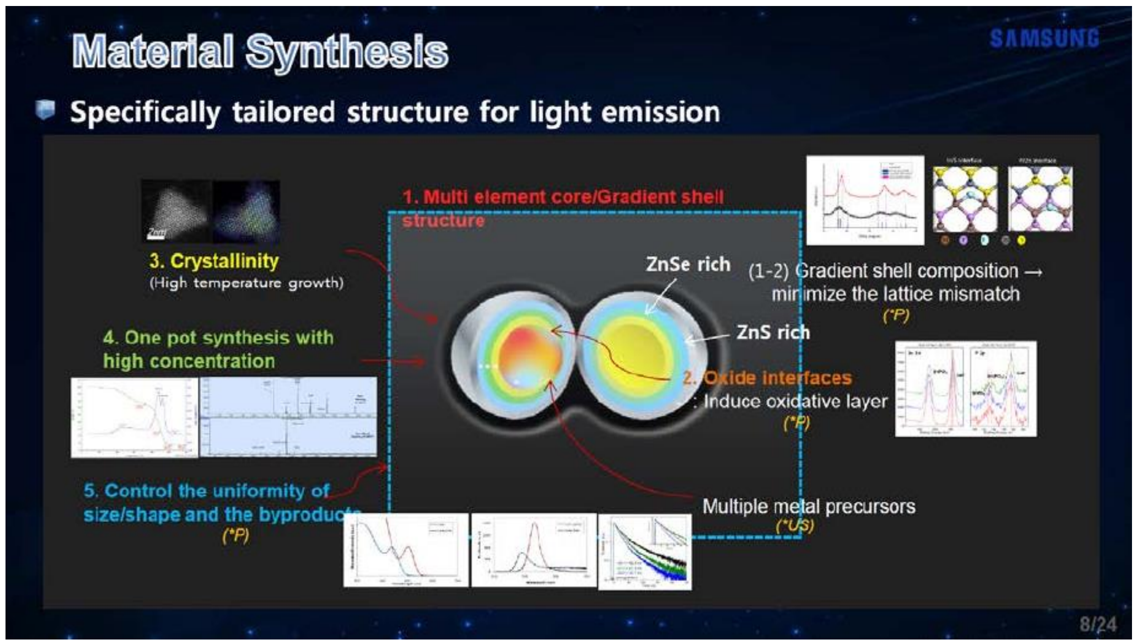
What the what?

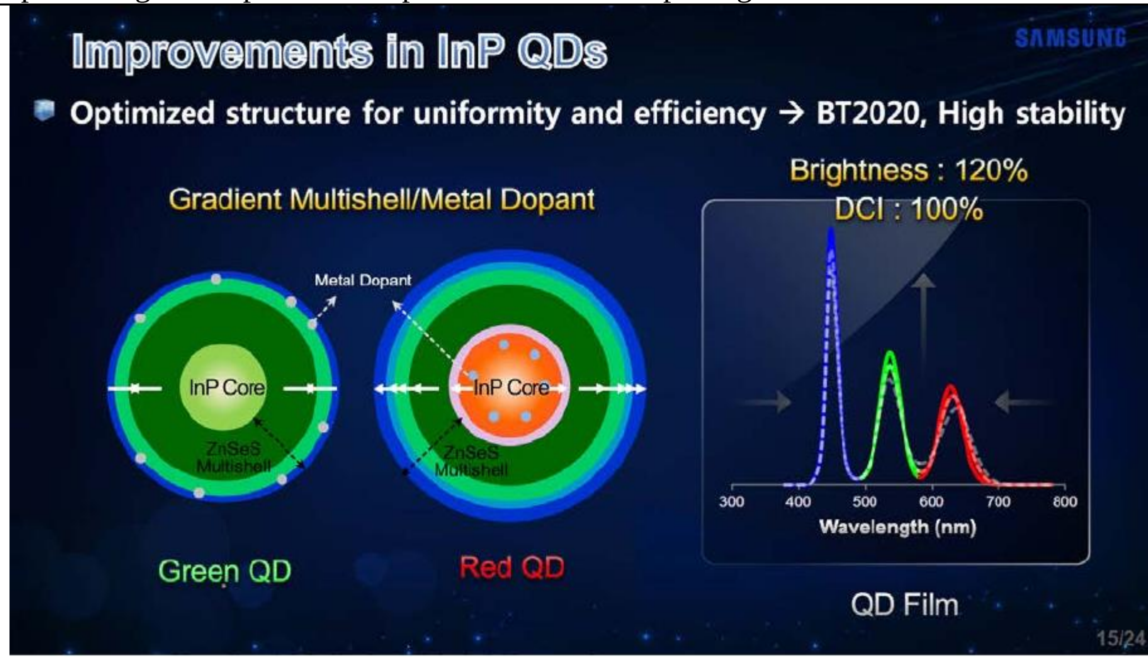
Quantum dots are microscopic nanocrystals that glow a specific wavelength (i.e. color) when given energy. The exact color produced by the QD depends on its size: larger for longer wavelengths (redder colors), smaller for shorter wavelengths (bluer). That's a bit of an oversimplification, but that's the basic idea.

Specific wavelengths of color is what we need to great an image on a television. Using the three primary colors of red, green, and blue, we can mix a full rainbow of teals, oranges, yellows, and more.

See e.g., https://www.cnet.com/news/quantum-dots-how-nanocrystals-can-make-lcd-tvs-better/.

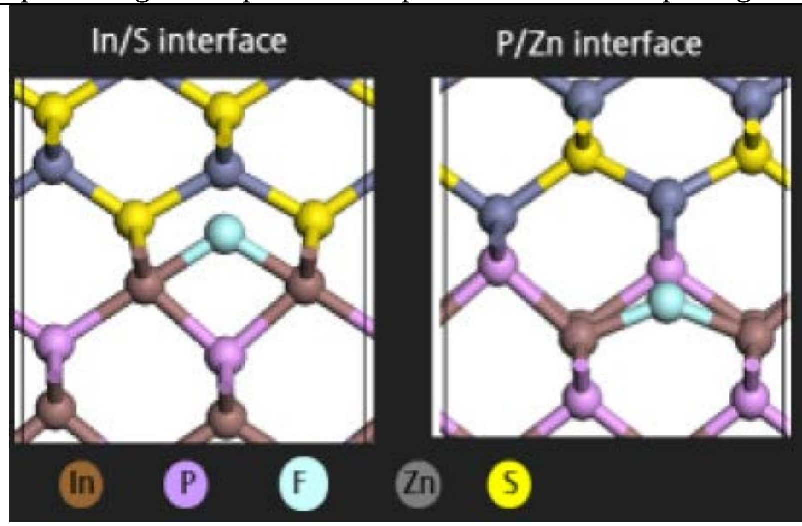
Samsung's Quantum Dots include an InP-based core, a first ZnSe shell, and a second ZnS shell.





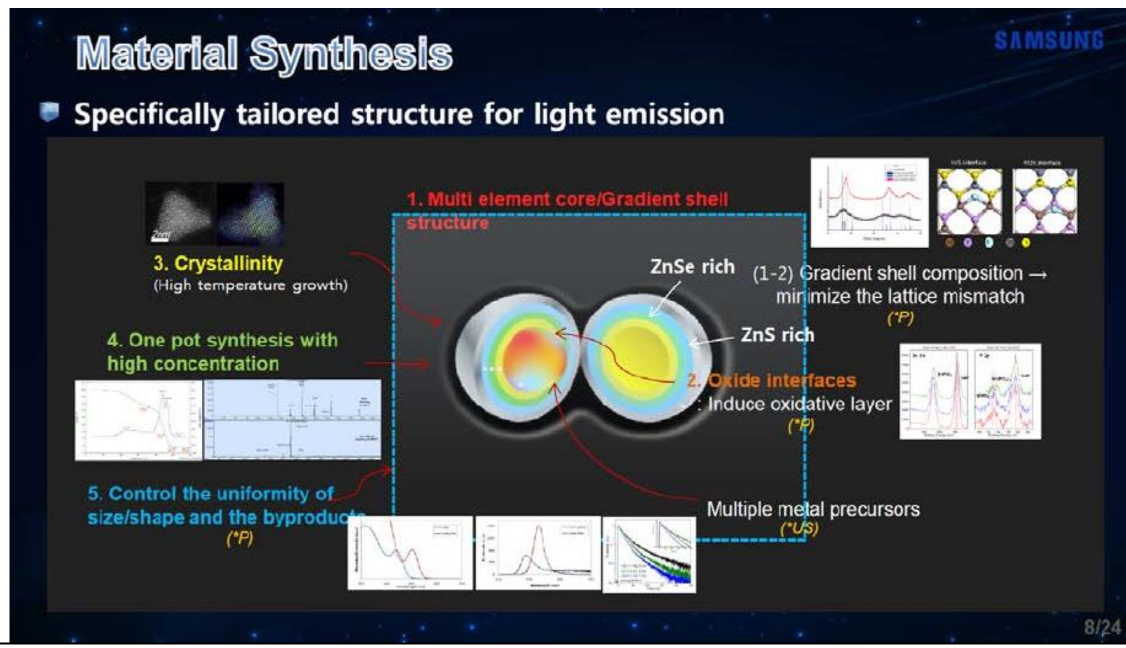
See e.g., “Environmentally Friendly Quantum Dots for Display Applications,” Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slides 8, 15.

Samsung demonstrates that a molecular interface exists between In, P, Zn, and S within their Quantum Dot cores.



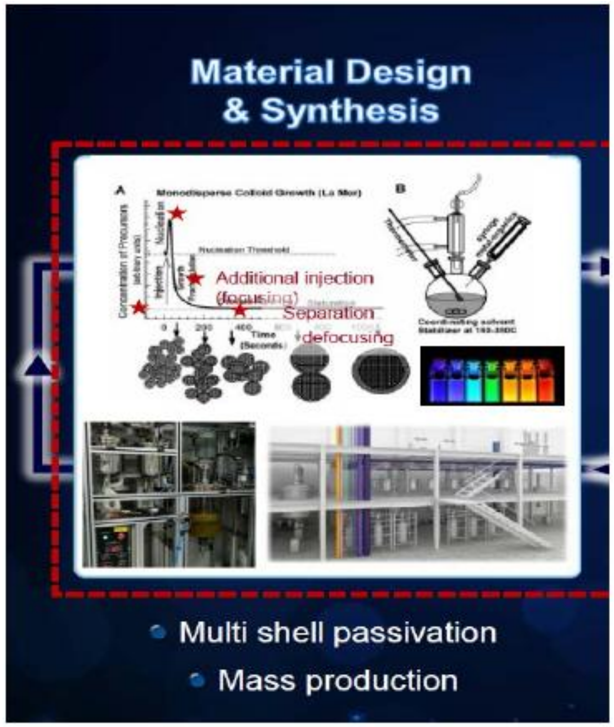
See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 8.

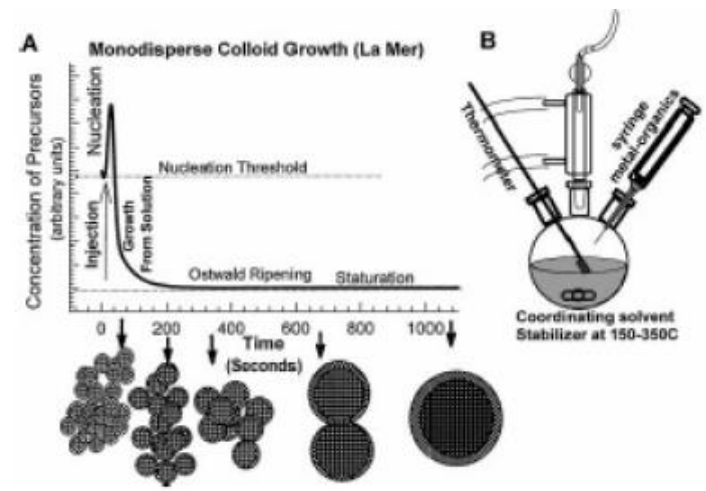
Samsung's Quantum Dots are produced using a method. For example, Samsung discloses the use of a "one pot synthesis with high concentration" to make Quantum Dots.



See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 8.

Further, Samsung depicts a lab scale reaction setup for Quantum Dot synthesis and the injection of metal-organics ("nanoparticle precursor composition").





See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 13.

Further, Samsung discloses various large scale and mass production reaction setups for Quantum Dot synthesis.

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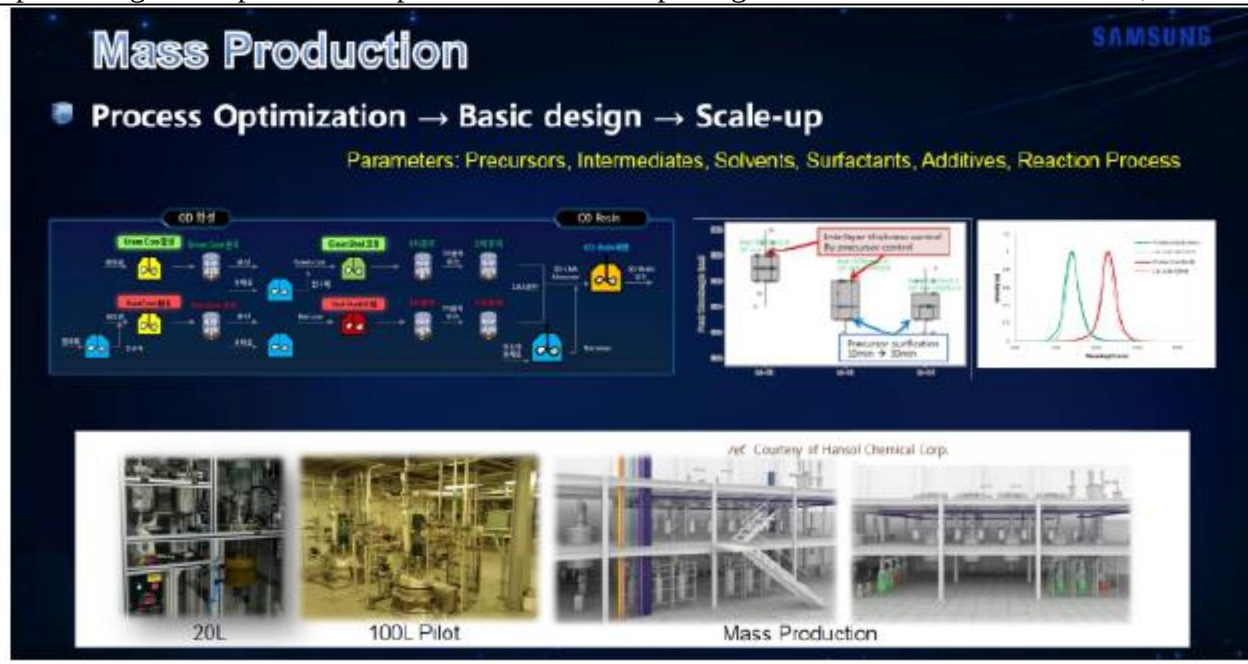

See e.g., “Environmentally Friendly Quantum Dots for Display Applications,” Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 10.
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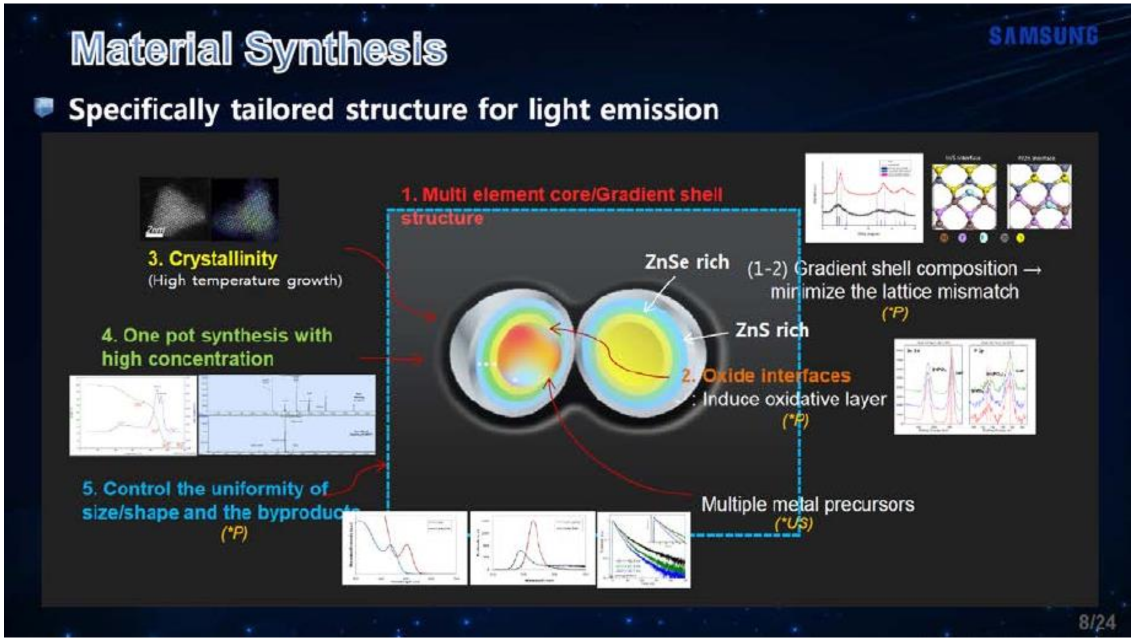
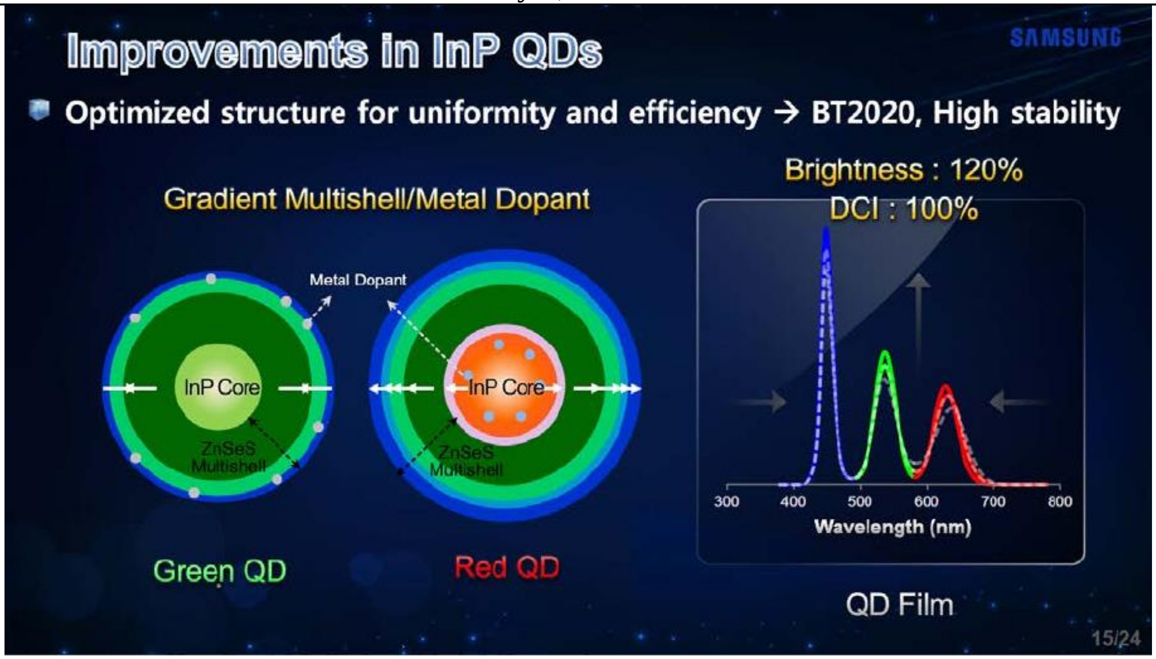
"a first layer comprising a first semiconductor material provided on said core and a second layer comprising a second semiconductor material provided on said first layer,"

a first layer comprising a first semiconductor material provided on said core and a second layer comprising a second semiconductor material provided on said first layer,	The method used to synthesize Samsung's Quantum Dots results in a Quantum Dot having a first layer comprising a first semiconductor material provided on said core and a second layer comprising a second semiconductor material provided on said first layer. For example, Samsung's Quantum Dots include an InP-based core, a first ZnSe shell, and a second ZnS shell.





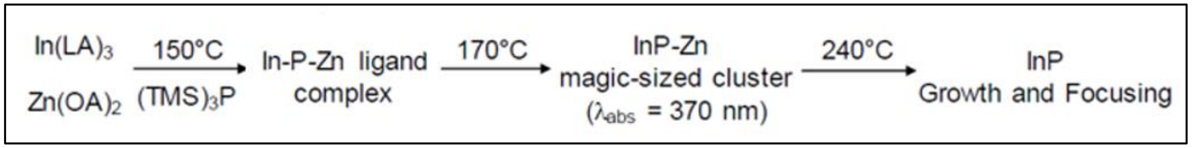
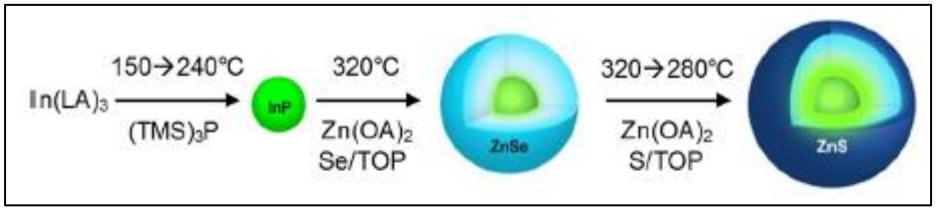
See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 8.

Upon information and belief, Samsung's Quantum Dots are formed using the following synthesis process, which results in a ZnSe layer provided on an InP core and a ZnS layer provided on the first ZnSe layer.

"We injected $(TMS)_3P$ at 150 °C in the presence of both indium laurate ($In(LA)_3$) and zinc oleate ($Zn(OA)_2$) precursors. At this mild temperature the In−P−Zn ligand complexes were first formed, and then they were converted to InP MSCs as the temperature increased to 170 °C, showing a sharp absorption peak at 370 nm."

See e.g., "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics) (Exhibit 13), at 1497[2].

[2] Dr. Eunjoo Jang of Samsung's Advanced Institute of Technology (SAIT) is responsible for the synthesis of Samsung's Quantum Dots. *See e.g.*, https://news.samsung.com/global/quantum-dot-artisan-dr-eunjoo-jang-samsung-fellow. SAIT is Samsung's Research and Development Center. *See e.g.*, https://www.sait.samsung.co.kr/saithome/mobile/research/what.do. The cited paper—authored by Eunjoo Jang—describes a method for synthesizing InP/ZnSe/ZnS quantum dots. As

	  *Id., see also e.g.*, "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics), Supporting Information (Exhibit 14) at S-3.

previously shown, Samsung describes its quantum dots as comprising a core-shell structure of InP/ZnSe/ZnS. *See e.g.*, "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slides 8.

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<td>said core semiconductor material being different to said first semiconductor material and said first semiconductor material being different to said second semiconductor material,</td>
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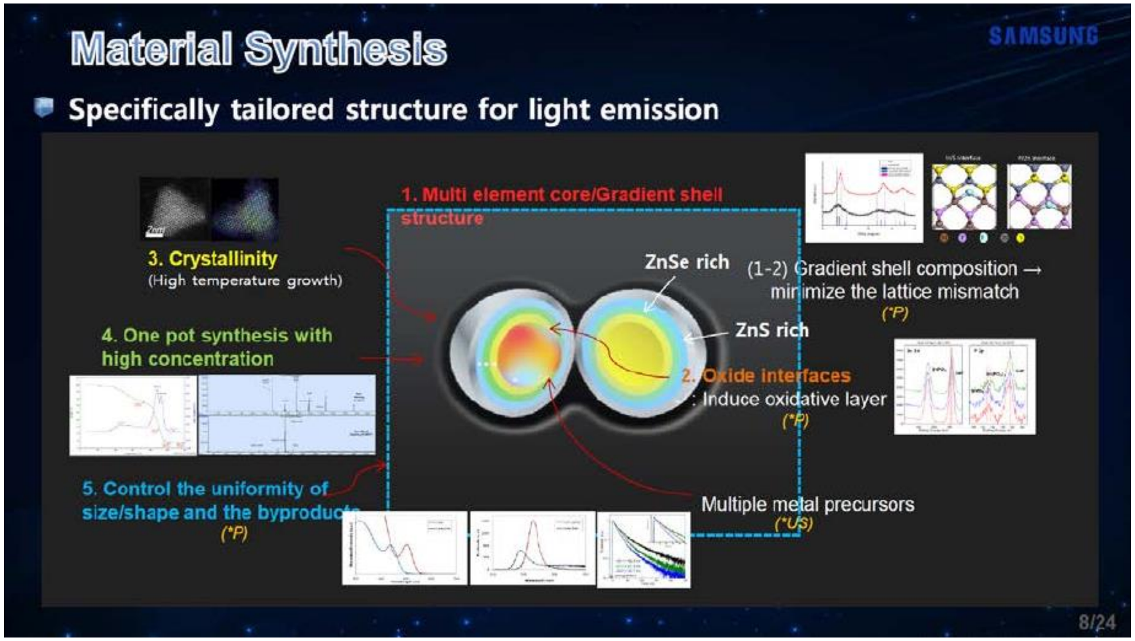
The method used to synthesize Samsung's Quantum Dots results in a Quantum Dot where the core semiconductor material is different to said first semiconductor material and said first semiconductor material is different to said second semiconductor material.

For example, Samsung's Quantum Dots include an InP-based core, a first ZnSe shell, and a second ZnS shell.



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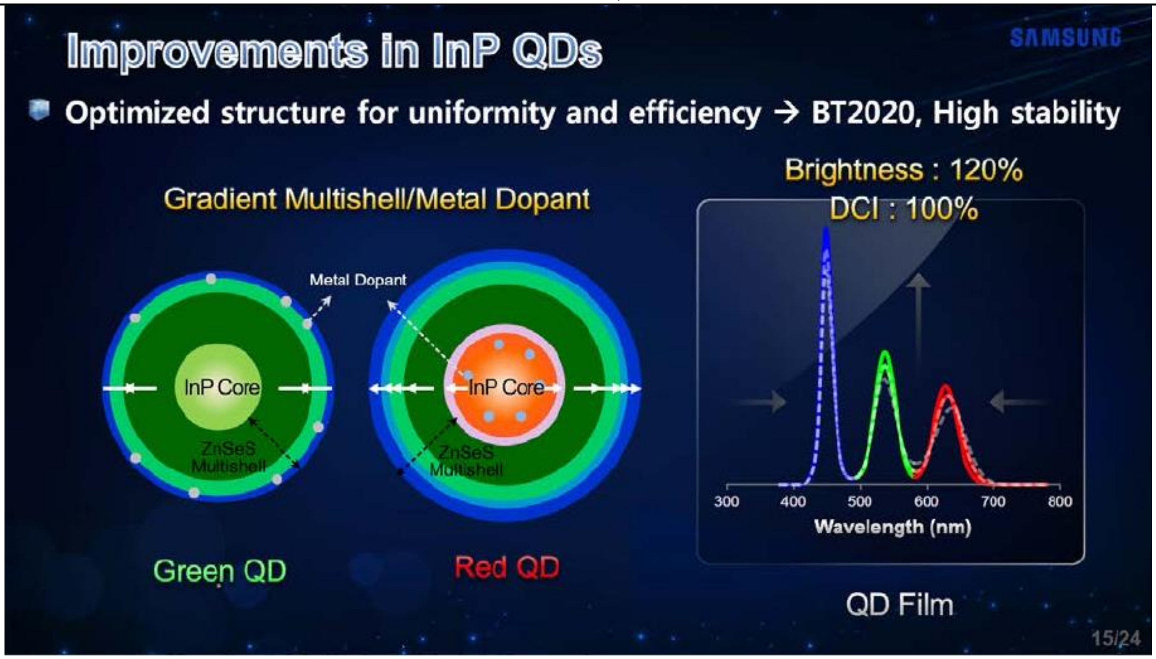


See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 8.

"the method comprising: effecting conversion of a nanoparticle core precursor composition to the material of the nanoparticle core;"

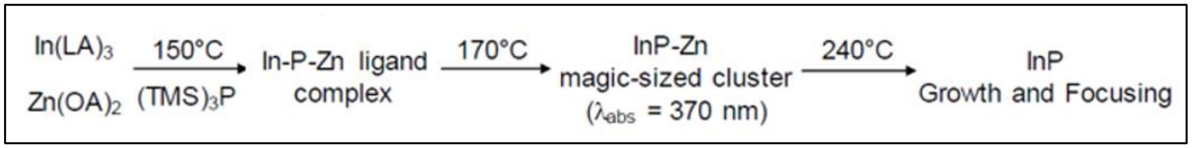
the method comprising: effecting conversion of a nanoparticle core precursor composition to the material of the nanoparticle core;

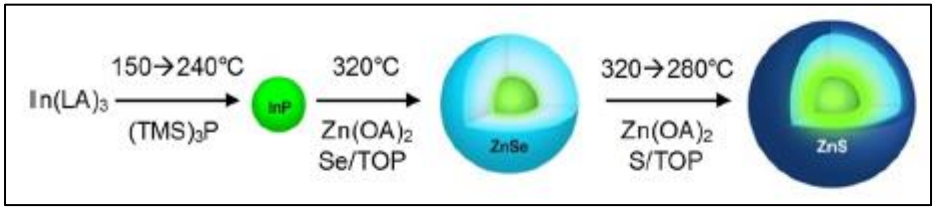
The method used to synthesize Samsung's Quantum Dots comprises effecting conversion of a nanoparticle core precursor composition to the material of the nanoparticle core.

For example, upon information and belief, Samsung's Quantum Dots are formed using the following synthesis process, which converts a nanoparticle precursor composition to a material of the nanoparticles core.

"We injected $(TMS)_3P$ at 150 °C in the presence of both indium laurate ($In(LA)_3$) and zinc oleate ($Zn(OA)_2$) precursors. At this mild temperature the In − P − Zn ligand complexes were first formed, and then they were converted to InP MSCs as the temperature increased to 170 °C, showing a sharp absorption peak at 370 nm."

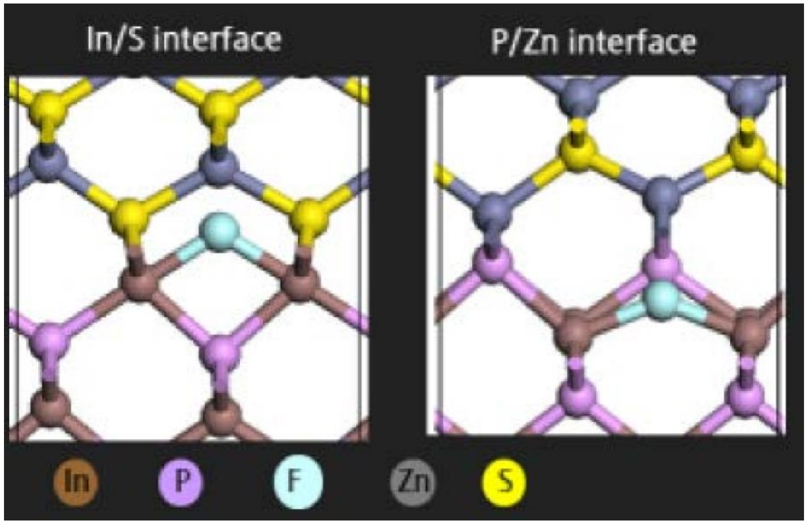
See e.g., "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics) (Exhibit 13), at 1497.





Id., see also e.g., "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics), Supporting Information (Exhibit 14) at S-3.

The precursor composition comprises a fist precursor specific containing a first ion to be incorporated into the nanoparticles and a separate second precursor species containing a second ion to be incorporated into the nanoparticles. For example, Samsung's Quantum Dot synthesis process demonstrates that, at least, $In(LA)_3$, $Zn(OA)_2$, and $(TMS)_3P$ are precursor species comprised of ions contained in Samsung's resulting Quantum Dot nanoparticle core. *Id.*

	Samsung demonstrates that a molecular interface exists between In, P, Zn, F, and S within their Quantum Dot cores, which means that precursor species containing, at least, In, P, Zn, and S are used in the synthesis process.  *See e.g.*, "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 8.

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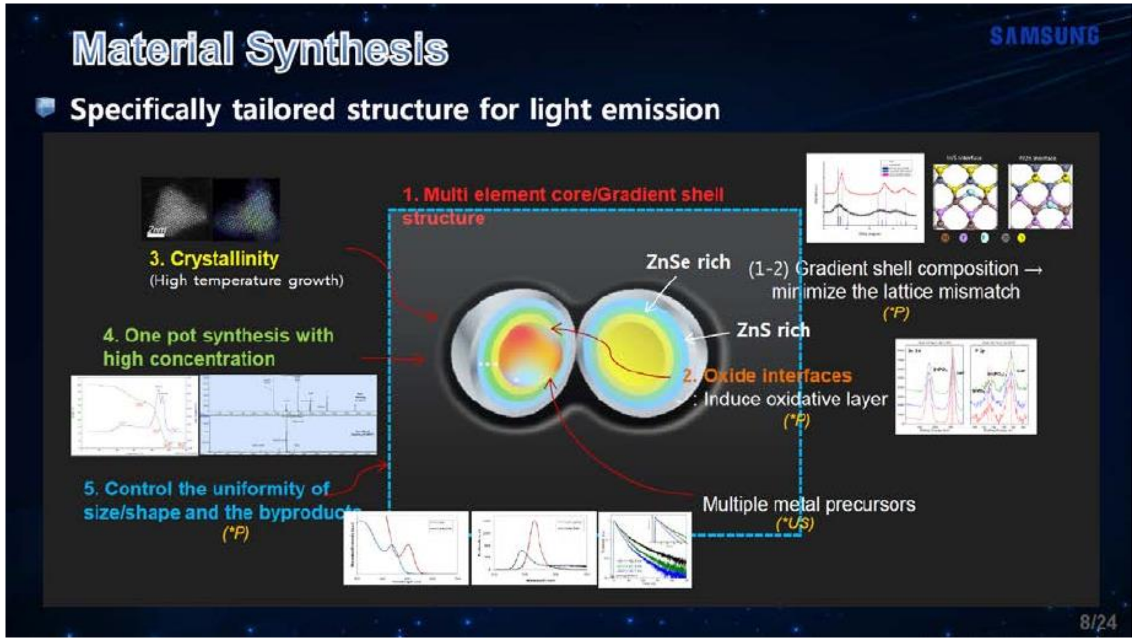
<td>depositing said first layer on said core; and</td>
<td>
The method used to synthesize Samsung’s Quantum Dots includes depositing said first layer on said core.

Samsung’s Quantum Dots include an InP-based core, a first ZnSe shell, and a second ZnS shell.



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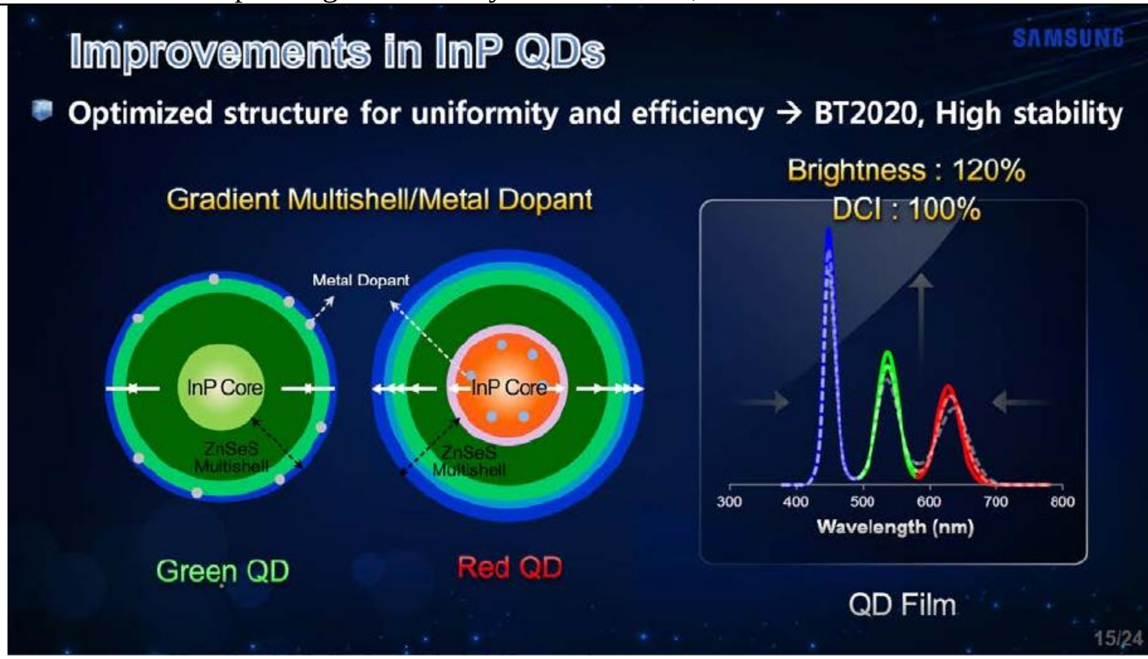
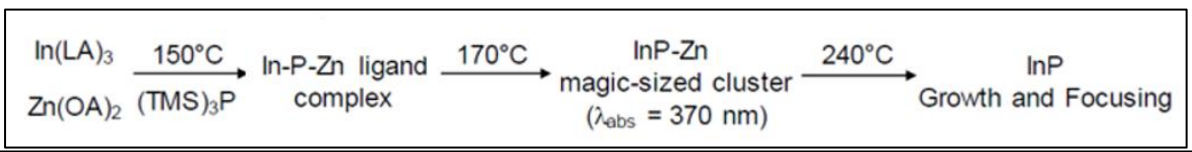


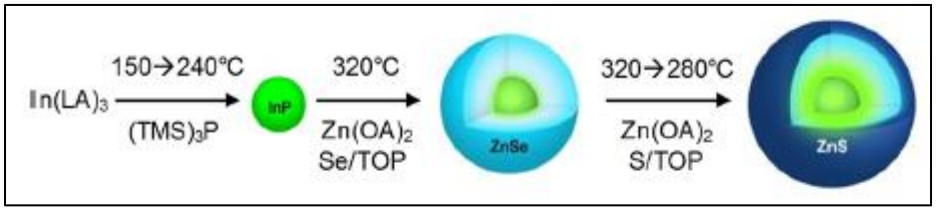
See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slides 8.

Upon information and belief, Samsung's Quantum Dots are formed using the following synthesis process, which deposits a ZnSe layer on the InP core.

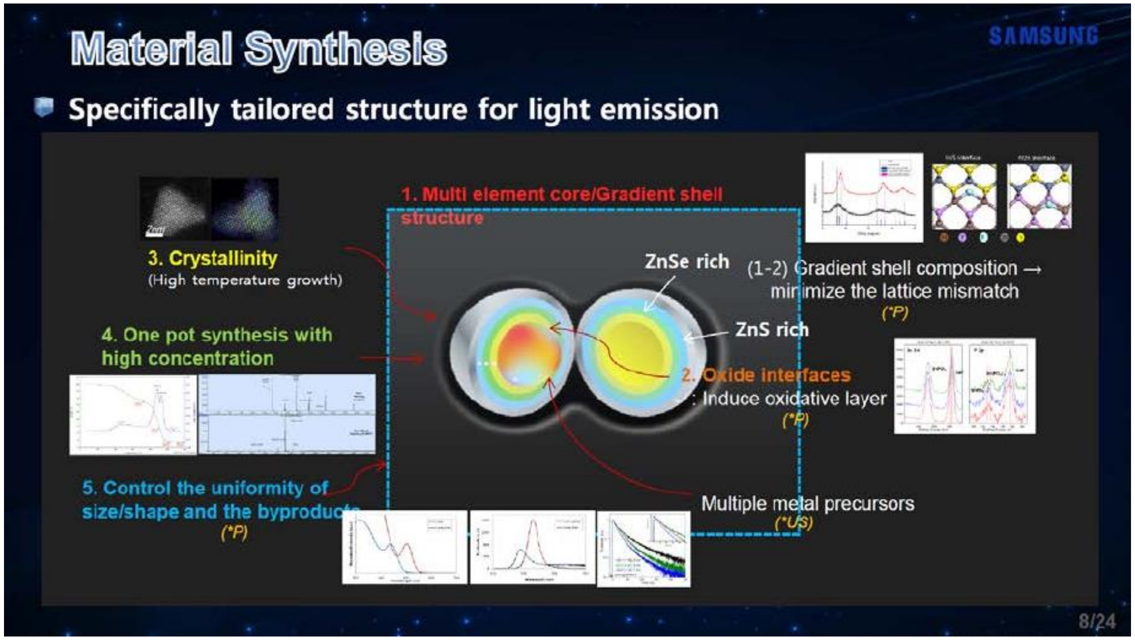
"We injected $(TMS)_3P$ at 150 °C in the presence of both indium laurate ($In(LA)_3$) and zinc oleate ($Zn(OA)_2$) precursors. At this mild temperature the In − P − Zn ligand complexes were first formed, and then they were converted to InP MSCs as the temperature increased to 170 °C, showing a sharp absorption peak at 370 nm."

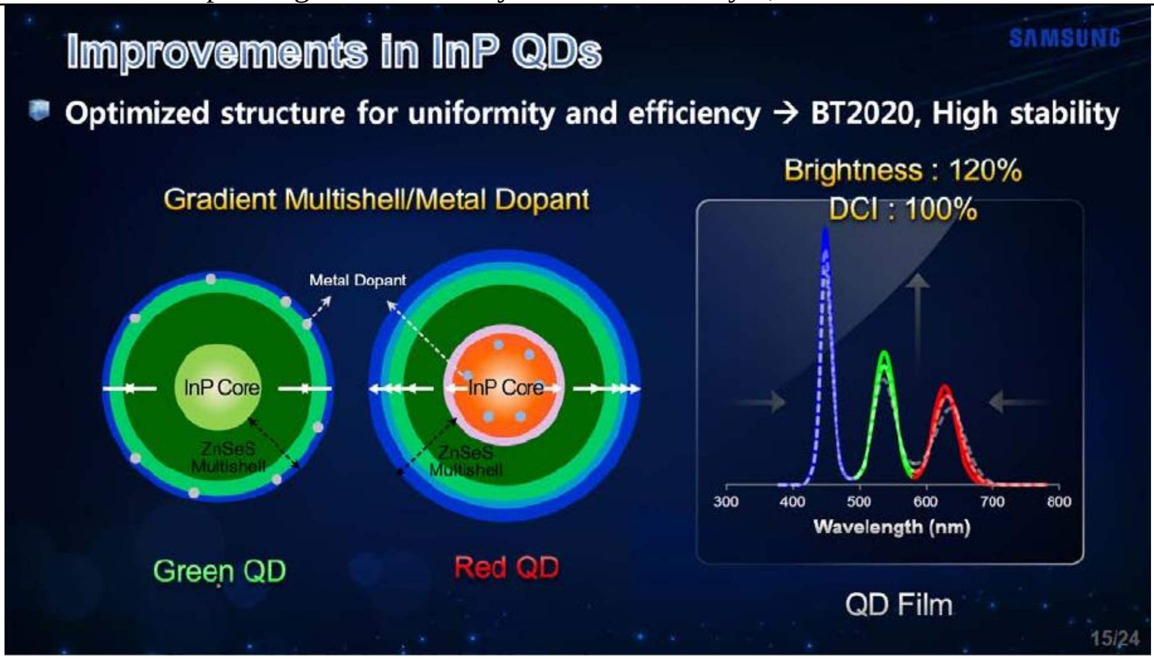
See e.g., "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics) (Exhibit 13), at 1497.





Id., see also "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics), Supporting Information (Exhibit 14) at S-3.

depositing said second layer on said first layer,	The method used to synthesize Samsung's Quantum Dots includes depositing said second layer on said first layer. Samsung's Quantum Dots include an InP-based core, a first ZnSe shell, and a second ZnS shell. 

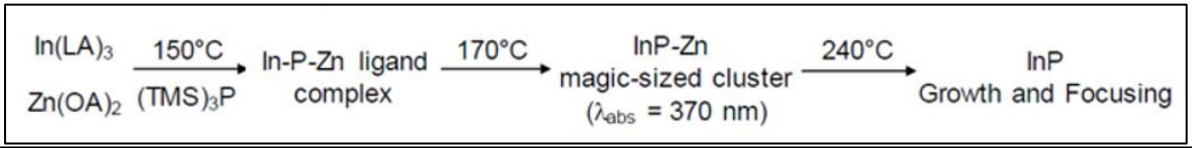


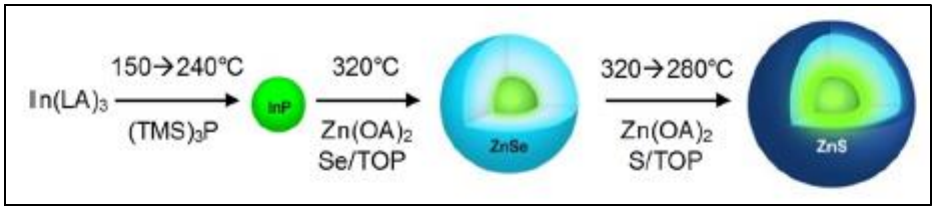
See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slides 8.

Upon information and belief, Samsung's Quantum Dots are formed using the following synthesis process, which deposits a ZnS layer on the ZnSe layer.

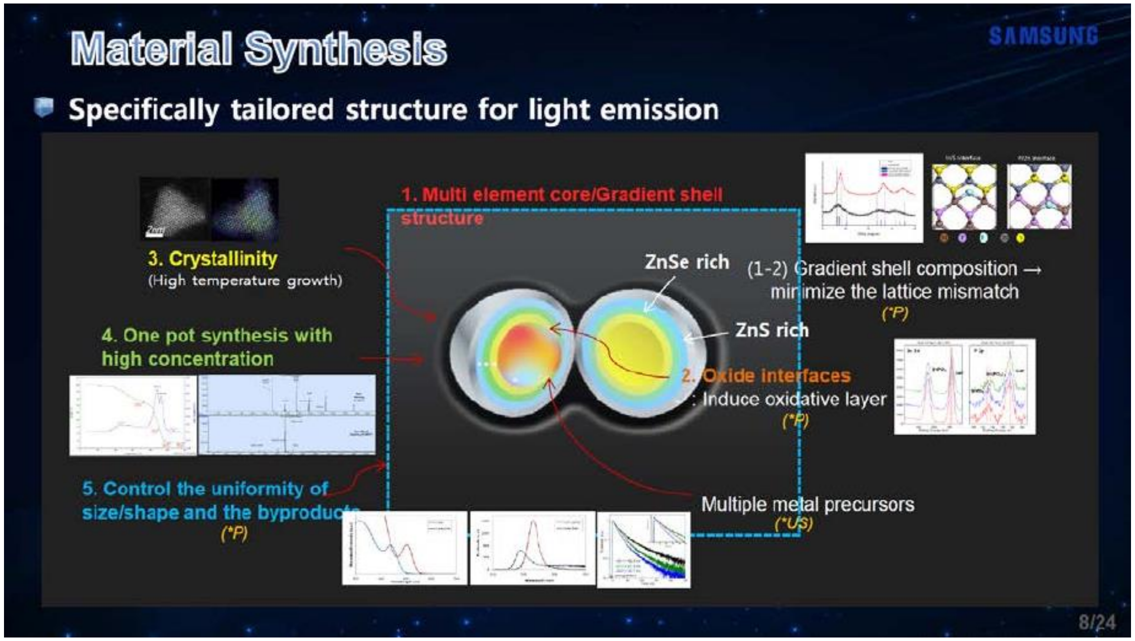
"We injected $(TMS)_3P$ at 150 °C in the presence of both indium laurate ($In(LA)_3$) and zinc oleate ($Zn(OA)_2$) precursors. At this mild temperature the In − P − Zn ligand complexes were first formed, and then they were converted to InP MSCs as the temperature increased to 170 °C, showing a sharp absorption peak at 370 nm."

See e.g., "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics) (Exhibit 13), at 1497.

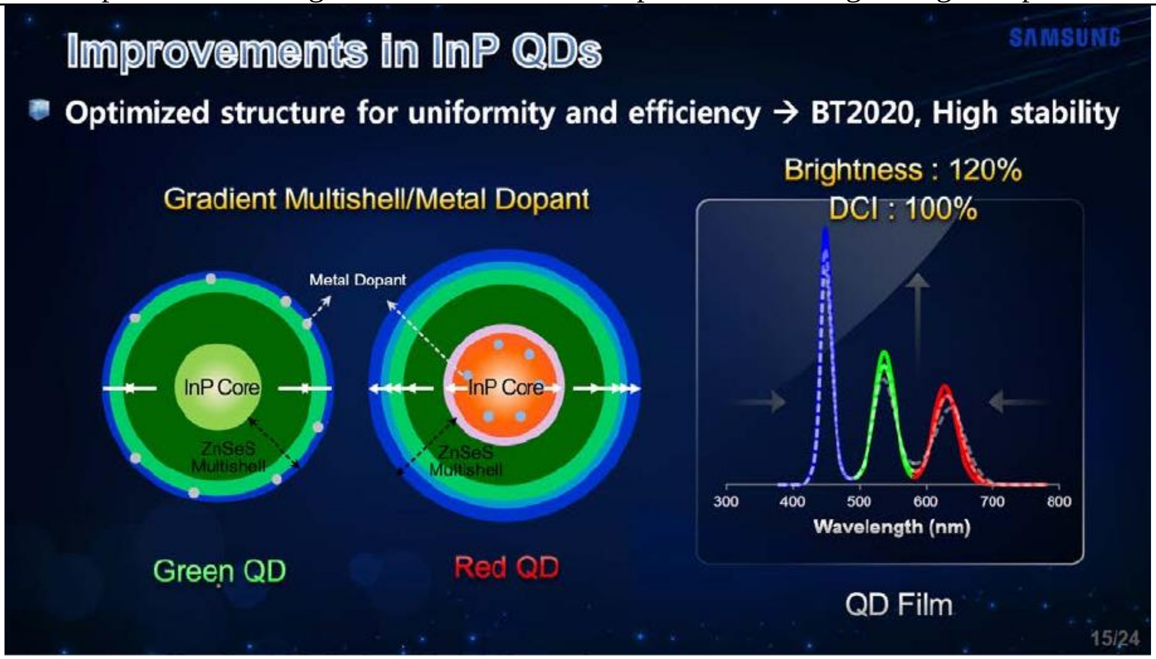


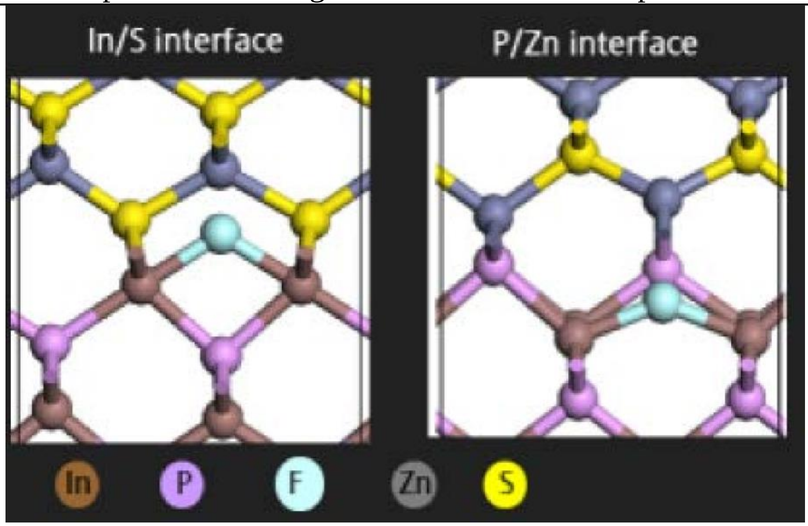
	 *Id., see also e.g.*, "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics), Supporting Information (Exhibit 14) at S-3.

"said core precursor composition comprising a first precursor species containing a first ion to be incorporated into the growing nanoparticle core and a separate second precursor species containing a second ion to be incorporated into the growing nanoparticle core,"

said core precursor composition comprising a first precursor species containing a first ion to be incorporated into the growing nanoparticle core and a separate second precursor species containing a second ion to be incorporated into the growing nanoparticle core,	The method used to synthesize the Samsung Quantum Dots uses a precursor composition comprising a first precursor species containing a first ion to be incorporated into the growing nanoparticle core and a separate second precursor species containing a second ion to be incorporated into the growing nanoparticle core. For example, Samsung's Quantum Dots include an InP-based core, a first ZnSe shell, and a second ZnS shell. 

"said core precursor composition comprising a first precursor species containing a first ion to be incorporated into the growing nanoparticle core and a separate second precursor species containing a second ion to be incorporated into the growing nanoparticle core,"

	 *See e.g.*, "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slides 8. Samsung demonstrates that a molecular interface exists between In, P, Zn, F, and S within their Quantum Dot cores, which means that precursor species containing, at least, In, P, Zn, and S are used in the synthesis process.

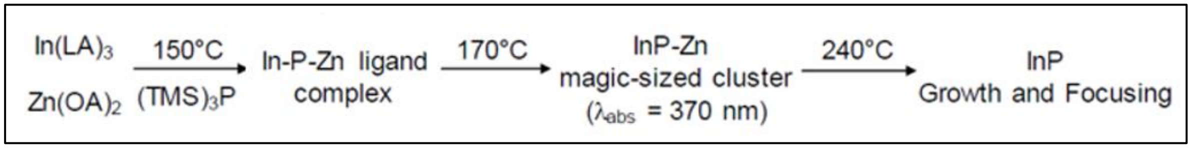


See e.g., "Environmentally Friendly Quantum Dots for Display Applications," Eunjoo Jang (Samsung Advanced Institute of Technology, Samsung Electronics), Quantum Dot Forum 2018 Presentation (Exhibit 12) at Slide 8.

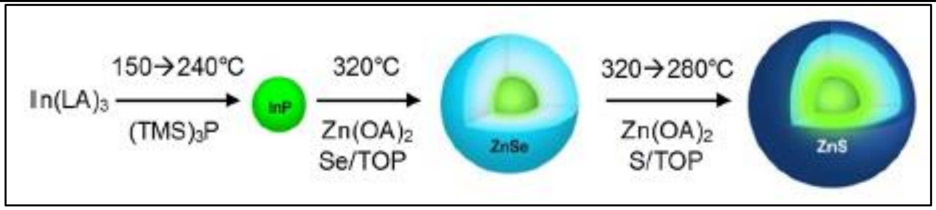
Upon information and belief, Samsung's Quantum Dots are formed using the following synthesis process, which demonstrates that, at least, $In(LA)_3$, $Zn(OA)_2$, and $(TMS)_3P$ are precursor species comprised of ions contained in Samsung's growing nanoparticle core.

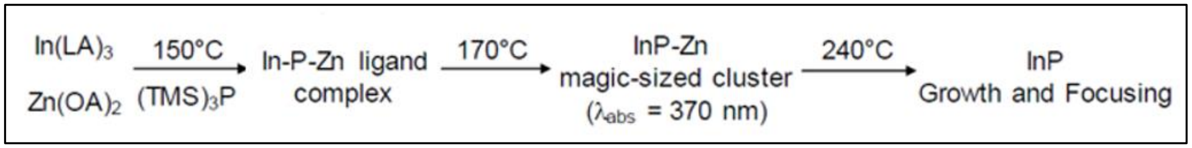
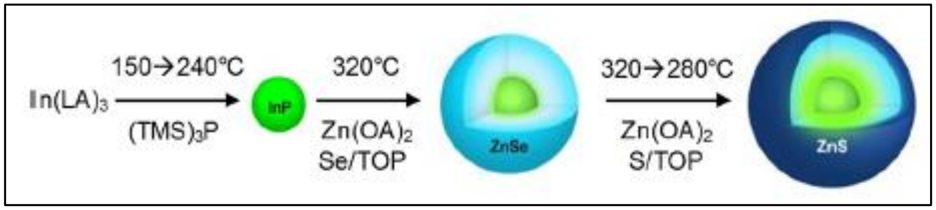
"We injected $(TMS)_3P$ at 150 °C in the presence of both indium laurate ($In(LA)_3$) and zinc oleate ($Zn(OA)_2$) precursors. At this mild temperature the In − P − Zn ligand complexes were first formed, and then they were converted to InP MSCs as the temperature increased to 170 °C, showing a sharp absorption peak at 370 nm."

See e.g., "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics) (Exhibit 13), at 1497.



"said core precursor composition comprising a first precursor species containing a first ion to be incorporated into the growing nanoparticle core and a separate second precursor species containing a second ion to be incorporated into the growing nanoparticle core,"

	 *Id., see also e.g.*, "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics), Supporting Information (Exhibit 14) at S-3.

said conversion being effected in the presence of a molecular cluster compound different from the nanoparticle core precursor composition.	The method used to synthesize Samsung Quantum Dots includes conversion being effected in the presence of a molecular cluster compound different from the nanoparticle core precursor composition. For example, Samsung's Quantum Dots are formed using the following synthesis process, where conversion is effected in the presence of a molecular cluster compound different from the nanoparticle core precursor composition. **"We injected $(TMS)_3P$ at 150 °C in the presence of both indium laurate ($In(LA)_3$) and zinc oleate ($Zn(OA)_2$) precursors. At this mild temperature the In − P − Zn ligand complexes were first formed, and then they were converted to InP MSCs as the temperature increased to 170 °C, showing a sharp absorption peak at 370 nm."** *See e.g.*, "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics) (Exhibit 13), at 1497.   *Id., see also e.g.*, "Bright and Uniform Green Light Emitting InP/ZnSe/ZnS Quantum Dots for Wide Color Gamut Displays," ACS Appl. Nano Mater. 2019, 2, 1496−1504, Eunjoo Jang et. al. (Samsung Advanced Institute of Technology, Samsung Electronics), Supporting Information (Exhibit 14) at S-3. Samsung's Quantum Dot synthesis process demonstrates that, at least, $In(LA)_3$, $Zn(OA)_2$, and $(TMS)_3P$ are precursor species and a molecular cluster compound that are all different from each other and comprised of ions contained in Samsung's resulting Quantum Dot nanoparticle core. *Id.*