

**HIGH VISCOSITY INDEX COMB POLYMER VISCOSITY MODIFIERS  
AND METHODS OF MODIFYING LUBRICANT VISCOSITY USING SAME**

**ABSTRACT**

5           A comb copolymer viscosity modifier may be made by polymerization  
comprising at least, or consisting essentially of, the following monomers: (a)  
(optionally from 7.0 wt% to 18 wt%, by repeat units, of) a hydrogenated  
polybutadiene-based (alk)acrylate ester macromonomer; (b) (optionally from 33 wt%  
to 64 wt%, by repeat units, of) a C<sub>3</sub>-C<sub>8</sub> alkyl (alk)acrylate ester monomer; (c) a C<sub>12</sub>-  
10 C<sub>24</sub> alkyl (alk)acrylate ester monomer; and (d) (optionally from 3.0 wt% to 25 wt%,  
by repeat units, of) H-endcapped, C<sub>1</sub>-C<sub>18</sub> alkyl-endcapped, or C<sub>6</sub>-C<sub>20</sub> aryl-, aralkyl-, or  
alkaryl- endcapped C<sub>2</sub>-C<sub>6</sub> oxyalkyl or C<sub>2</sub>-C<sub>6</sub> oligo(alkylene glycol)-based  
(alk)acrylate ester monomer, wherein repeat units based on monomer (c) and/or  
monomer (d) comprise at least 21.0 wt% (and optionally up to 35.0 wt%) of repeat  
15 units of the comb copolymer viscosity modifier. Lubricant compositions comprising  
the comb copolymer viscosity modifier, as well as uses thereof and methods for  
modifying viscosity and dispersancy, are also contemplated.

No Figure