LUBRICANT COMPOSITION

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application Serial No. 62/344,577, filed on June 2, 2016, the disclosure of which is hereby incorporated by reference in its entirety.

FIELD OF THE DISCLOSURE

[0002] The present disclosure generally relates to a lubricant composition.

BACKGROUND OF THE DISCLOSURE

[0003] Lubricant compositions are typically required to have a number of performance characteristics associated with the lubricant composition itself and/or with the performance of the equipment in which the lubricant composition is to be used (e.g. vehicles). Recently, market forces and governmental regulations have placed a renewed emphasis on fuel efficiency for vehicles. Thus, there remains an opportunity to develop a lubricant composition with improved fuel efficiency.

SUMMARY OF THE DISCLOSURE AND ADVANTAGES

[0003] The present disclosure provides a lubricant composition. The lubricant composition includes a polyalkylene glycol base oil component in an amount of at least about 60 parts by weight based on 100 parts by weight of the lubricant composition. The lubricant composition has a kinematic viscosity at 100°C of from about 4 to about 50 cSt and a kinematic viscosity at 40°C of from about 20 to about 700 cSt, each measured in accordance with ASTM D445. The lubricant composition is useful for increasing the fuel efficiency of a vehicle.

[0003a] In an aspect, there is provided a lubricant composition comprising a polyalkylene glycol base oil component in an amount of at least about 60 parts by weight based on 100 parts by weight of said lubricant composition, wherein said lubricant composition has a kinematic

viscosity at 100°C of from about 4 to about 50 cSt and a kinematic viscosity at 40°C of from about 20 to about 700 cSt, each measured in accordance with ASTM D445.

[0003b] In another aspect, there is provided an axle lubricant comprising:

a polyalkylene glycol base oil component that is water-soluble and present in an amount of at least about 80 parts by weight based on 100 parts by weight of said axle lubricant, said polyalkylene glycol base oil component comprising;

a first polyalkylene glycol in an amount of from about 50 to about 85 parts by weight based on 100 parts by weight of said axle lubricant with said first polyalkylene glycol having a kinematic viscosity at 100°C of from about 2 to about 30 cSt and a kinematic viscosity at 40°C of from about 10 to about 50 cSt, each measured in accordance with ASTM D445, and

a second polyalkylene glycol in an amount of from about 5 to about 35 parts by weight based on 100 parts by weight of said axle lubricant with said second polyalkylene glycol having a kinematic viscosity at 100°C of from about 120 to about 200 cSt and a kinematic viscosity at 40°C of from about 800 to about 1,200 cSt, each measured in accordance with ASTM D445;

wherein said axle lubricant has a kinematic viscosity at 100°C of from about 4 to about 50 cSt and a kinematic viscosity at 40°C of from about 20 to about 300 cSt, each measured in accordance with ASTM D445;

wherein said axle lubricant is essentially free of Type I, II, III, and IV base oils; and

wherein said axle lubricant has a viscosity index of from about 170 to about 250 as measured in accordance with ASTM D2270.

[0003c] In another aspect, there is provided a method of increasing the fuel efficiency of a vehicle having an axle, said method comprising;

providing an axle lubricant comprising a polyalkylene glycol base oil component present in an amount of at least about 60 parts by weight based on 100 parts by weight of the axle lubricant;

wherein the axle lubricant has a kinematic viscosity at 100°C of from about 4 to about 50 cSt and a kinematic viscosity at 40°C of from about 20 to about 300 cSt, each measured in accordance with ASTM D445;

wherein the axle lubricant has a traction coefficient of less than 0.030 when measured under Stribeck conditions, at a speed of 1,000 mm/s, and at a temperature of 100°C and

contacting the lubricant and the axle of the vehicle to increase the fuel efficiency of the vehicle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Figure 1A is a line graph illustrating traction coefficient data for certain embodiments of the lubricant composition.