~~We claim~~Claims:

1. A composition comprising a styrene-butadiene rubber, ~~wherein~~ the styrene butadiene rubber ~~is~~being characterized before any vulcanization by ~~one or more of~~ the following:

(a) two or more portions in one polymer chain which are incompatible with each other; ~~or~~

(b) two or more glass transition temperatures that vary by at least ~~about~~ 6 °C; ~~or~~

(c) two or more solubility parameter (δ (SBR)) values which differ by ~~at least~~ more than ~~about~~ 0.65 $(J/cm^3)^{0.5}$; ~~or~~and

(d) two or more portions which vary in styrene content by at least 20 weight percent based on the total weight of each portion ~~by at least about 20 weight percent~~;

wherein the styrene-butadiene rubber comprises at least a portion which is compatible with a second rubber and a portion which is not compatible with ~~said same~~the second rubber; and

wherein at least a portion of the styrene-butadiene rubber is chain end functionalized.

~~2. The composition of Claim 1 wherein the styrene butadiene rubber is characterized by (a) two or more portions which are incompatible with each other.~~

~~3. The composition of Claim 1 wherein the styrene butadiene rubber is characterized by (b) two or more glass transition temperatures that vary by at least about 6 °C.~~

42. The composition of Claim 1, wherein the styrene-butadiene rubber is characterized by (b) two or more glass transition temperatures that vary by at least ~~about~~ 8°C, preferably at least 9°C.

~~5. The composition of Claim 1 wherein the styrene butadiene rubber is characterized by (b) two or more glass transition temperatures that vary by at least about 9°C.~~

~~6. The composition of Claim 1 wherein the styrene butadiene rubber is characterized by (c) two or more δ (SBR) values which differ by at least more than about 0.65 $(J/cm^3)^{0.5}$.~~

~~7. The composition of Claim 1 wherein the styrene butadiene rubber is characterized by (d) two or more portions which vary in styrene content by at least about 20 weight percent.~~

~~8~~3. The composition of Claim 1, wherein the styrene-butadiene rubber is coupled in an amount up to 40% by weight based on the total weight of the rubber, as determined by size exclusion chromatography.

~~9. The composition of Claim 1 wherein at least a portion of the styrene butadiene rubber is chain end functionalized.~~

~~10~~4. The composition of Claim ~~9~~1, wherein the portion of the styrene-butadiene rubber that is chain end functionalized comprises less styrene ~~content~~ than a portion of the styrene-butadiene rubber that is not chain end functionalized.

~~11~~5. The composition of Claim 1, wherein the styrene-butadiene rubber is characterized by an ML 1+4 value of from ~~about~~ 20 to ~~about~~ 120 at 100°C.

~~12~~6. The composition of Claim 1, wherein the styrene-butadiene rubber comprises a portion in the polymer chain which ~~comprises~~has a styrene content of from ~~about~~ 0 to ~~about~~ 27 weight percent based on the total weight of the first portion, and the styrene-butadiene rubber comprises a second portion in the polymer chain which ~~comprises~~has a styrene content of from ~~about~~ 21 to ~~about~~ 70 weight percent based on the total weight of the second portion.

~~13~~7. The composition of Claim 1, ~~which~~wherein the styrene-butadiene rubber comprises ~~a~~ first ~~portion in the polymer chain which is~~and second incompatible ~~with a second~~ portions in ~~the polymer chain wherein the~~a weight ratio of ~~said first portion to said second portion is~~ from ~~about~~ 90:10 to ~~about~~ 10:90.

~~14~~8. The composition of Claim 1, which further comprises a second rubber ~~compound~~.

9. The composition of Claim 8, wherein the second rubber is natural rubber, cis-polybutadiene, emulsion-polymerized styrene-butadiene rubber, high vinyl polybutadiene or a mixture thereof.

~~15~~10. ~~A vulcanized~~The composition of Claim 1, ~~comprising the styrene butadiene rubber of Claim 1 and at least one other rubber~~ wherein the composition is vulcanized and comprises at least one other rubber besides the styrene-butadiene rubber, and wherein:

(1) the absolute value of the difference between the solubility parameter δ (other rubber) and the solubility parameter δ (~~S~~SBR, portion i) of at least one portion of the styrene-~~-~~butadiene rubber ~~of Claim 1~~ is ~~lower~~less than ~~about~~ 0.65 $(J/cm^3)^{0.5}$; and

(2) the absolute value of the difference between the solubility parameter δ (other rubber) and the solubility parameter δ (~~S~~SBR, portion j) of at least one other portion of styrene-~~-~~butadiene rubber ~~of Claim 1~~ is ~~higher~~greater than ~~about~~ 0.65 $(J/cm^3)^{0.5}$.

~~16. The composition of Claim 14 wherein said second rubber compound is selected from the group consisting of natural rubber, cis-polybutadiene, emulsion polymerized styrene-butadiene rubber, high vinyl polybutadiene, and mixtures thereof.~~

~~17~~11. The composition of Claim 1, which further comprises at least one filler.

~~18~~12. The composition of Claim ~~17~~11, ~~wherein the filler~~which comprises a carbon black filler and/or a silica filler.

~~19~~13. The composition of Claim 1, wherein the composition is vulcanized.

~~20~~14. The composition of Claim ~~19~~13, wherein ~~upon vulcanization~~ the vulcanized composition is characterized by at least two maxima in the tan delta course with ~~the~~ temperature.