COMPARATIVE EXAMPLE 1

A silicone self-adhesive composition was prepared by the same procedure as Example 1 except that the vinylmethylpolysiloxane of formula (5) was omitted. Similarly an adhesive sheet and tape were fabricated.

COMPARATIVE EXAMPLE 2

A silicone self-adhesive composition was prepared by mixing 100 parts of a commercially available vinyl-free silicone adhesive agent designated KR-101-10 (manufactured by Shin-Etsu Chemical Co., Ltd.), 50 parts of toluene, and 1.2 parts of benzoyl peroxide. As in Example 1, the composition was applied to a polyimide film and cured to a dry coating thickness of 30 μm by heating at 180° C. for 3 minutes. There were obtained a polyimide support adhesive sheet and a polyimide support adhesive tape.

These adhesive sheets and tapes were examined for tack, adhesive force, cohesive force and heat resistance by the following tests. The results are shown in Table 1.

TACK

An inclination ball tack test was carried out. The adhesive tape with its adhesive layer upward was placed on an inclined surface having an angle of 30°. A steel ball (SUJ2 as prescribed in JIS G-4805) at an approach distance of 10 cm was allowed to roll down the surface. The maximum diameter (in inch) of the ball that stopped within a distance of 10 cm over the adhesive layer was determined. The measuring conditions included a temperature of 25°±2° C. and a relative humidity of 65±5%.

ADHESIVE FORCE

The adhesive tape was pressure bonded to a stainless steel plate (SUS-304) by moving thereon a roller (metal roller having a weight of 2,000±50 g covered with a rubber layer of about 6 mm thick) back and forth at a speed of 300 mm/min. After the assembly was allowed to stand for one hour at 25°±2° C. and RH 65±5%, the adhesive tape was peeled off by means of an autograph (manufactured by Shimazu Mfg. K. K.) in a direction of 180° at a speed of 300 mm/min. for measuring the force required for peeling.

COHESIVE FORCE

The adhesive tape was bonded to a stainless steel plate (SUS-304) over an area of 25 mm×25 mm by the same roller-assisted method as used in the adhesive force measurement. With a load of 1 kg attached to the lower edge of the adhesive tape, the assembly was vertically suspended in an oven at 150° C. for 24 hours. The shift of the adhesive tape was measured under a reading microscope.

HEAT RESISTANCE

The silicone self-adhesive composition was applied to a Kapton film of 80 μm thick (manufactured by Toray K.K.) and cured to a dry thickness of 30 μm by heating. The resulting adhesive sheet was cut to a section of 50 mm×50 mm. The section was bonded to a stainless steel plate (SUS-304) using a 2-kg roller, allowed to stand at room temperature for one hour, heated in an oven at 260° C. for 576 hours or 300° C. for 2 hours for heat degradation, taken out of the oven, and cooled down to room temperature. The section was observed for appearance (foamed or not), separation, and shift and evaluated according to the following ratings.

A: No change from the initial (before aging)

B: Some changes

C: More than 50% changes.

TABLE 1

		E1	E2	E3	CE1	CE2
Ball tack, inch		32	32	30	32	32
Adhesive force, g/25 mm		1150	1250	1400	1300	1000
Cohesive force, mm		0.10	0.50	0.30	1.50	≧25
Heat resistance after aging						
260° C./576 hr.	Foaming	A	A	A	C	C
	Peeling	A	A	A	B	B–C
	Shift	A	A	A	B–C	B–C
300° C./2 hr.	Foaming	A	A	A	C	C
	Peeling	A	A	A	B	B
	Shift	A	A	A	C	C

As seen from Table 1, the silicone self-adhesive compositions having the high vinyl content polysiloxane of formula (5) are significantly improved in heat resistance as compared with a composition free of the high vinyl content polysiloxane (Comparative Example 1) and the commercially available composition (Comparative Example 2). The present compositions remain comparable in physical properties including tack, adhesive force, and cohesive force. The present compositions gain such properties through lower temperature, shorter curing than the commercially available composition.

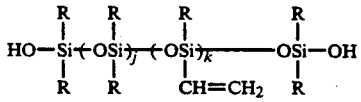
There has been described a silicaone self-adhesive composition which can be briefly cured at relatively low temperatures to form an adhesive layer which exhibits improved bonding properties including tack, adhesive force and cohesive force and withstands temperatures of higher than 250° C. for a long time. The composition is thus suitable for use as heat resistant adhesive tapes and labels.

Although some preferred embodiments have been described, many modifications and variations may be made thereto in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

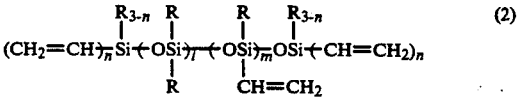
We claim:

1. A silicone self-adhesive composition comprising

(A) 100 parts by weight of at least one organopolysiloxane selected from the group consisting of organopolysiloxanes of the following general formula (1) and (2):



(1)



(2)

wherein R is a monovalent hydrocarbon group excluding alkenyl, letter n is an integer of from 0 to 3, k and m each are 0 or a positive integer, with the proviso that m is an integer of at least 2 when n is 0, and j and l each are an integer of at least 2,000,

(B) about 100 to 250 parts by weight of an organopolysiloxane comprising $R_3^1SiO_{\frac{1}{2}}$ and SiO_2 units wherein R^1 is a monovalenthydrocarbon gropu or