

9701777-6
IP03 copy

THIS SHEET HAS BEEN
REPLACED

Our Ref.: DK-130

- 1 -

THERMOPLASTIC RESIN MOLDED PRODUCT AND METHOD FOR ITS
PRODUCTION

The present invention relates to a thermoplastic resin molded product excellent in chemical resistance and a method for its production. Particularly, the present invention relates to a thermoplastic resin molded product obtained by a method (hereinafter referred to as a direct molding method) wherein an ABS resin and a thermoplastic resin mixture containing a certain specific acrylic rubbery polymer capable of imparting excellent chemical resistance to the ABS resin, are simultaneously supplied to and molded by a molding machine.

ABS resins have high impact strength and rigidity and are excellent in molding processability, gloss and appearance, and they are widely used for industrial parts and household electric equipments. In these applications, they are often in contact with various chemicals or cleaning agents, whereby cracking may form in ABS resin molded products. To prevent such cracking, it is required to impart chemical resistance to ABS

This Sheet Has Been Replaced



resins.

For the purpose of improving chemical resistance of an ABS resin, it is known to increase the molecular weight of the AS resin constituting a resin component of the ABS resin or to increase the compositional proportion of acrylonitrile which is a polar monomer constituting the AS resin. However, by such a method, the molding processability of the ABS resin is likely to be impaired, and the chemical resistance tends to be still inadequate.

Further, a composition consisting of a mixture of a rubber-containing styrene resin and an acrylate polymer, has also been proposed (JP-B-63-22222), and it is known that the chemical resistance is thereby remarkably improved. However, this method has a drawback that in order to produce molded products to meet requirements for various chemical resistance levels or other mechanical properties, many types of resin pellets corresponding to such property levels and very cumbersome operations such as mixing and kneading operations to obtain such many types of resin pellets, are required, and costs tend to be large. Further, to obtain such many types of pellets, kneading operations are required, whereby the ABS resin tends to deteriorate, thus leading to deterioration of the impact strength.

It is an object of the present invention to provide a thermoplastic resin molded product excellent in chemical resistance, which is obtained by directly molding an ABS

resin and a thermoplastic resin mixture capable of imparting excellent chemical resistance to the ABS resin, and to solve the above-mentioned problems such as the necessity for preparing many types of resin pellets, cumbersome operations, economical disadvantages and deterioration of impact strength, which used to be unavoidable to obtain molded products which satisfy various property levels.

The present inventors have conducted extensive studies to solve the above problems and as a result, have found a thermoplastic resin molded product obtained by directly molding the following thermoplastic resin mixture and an ABS resin and have found it possible to accomplish the above objects with this molded product. Namely, the present invention provides a thermoplastic resin molded product obtained by supplying to and molding by a molding machine, from 10 to 40 wt% of a thermoplastic resin mixture (I) and from 60 to 90 wt% of an ABS resin (II), wherein said thermoplastic resin mixture (I) is prepared by melt mixing from 40 to 80 wt% of an acrylic rubbery polymer (A) which is a homopolymer of an acrylate monomer or a copolymer of an acrylate monomer with other copolymerizable monomer, having a glass transition temperature of at most 0°C, a gel content of at most 70% and a solubility parameter of from 8.4 to 9.8 (cal/cc)^{1/2} and from 20 to 60 wt% of a vinyl copolymer (B) comprising from 60 to 80 wt% of units of an

aromatic vinyl monomer, from 20 to 40 wt% of units of a vinyl cyanide monomer and from 0 to 20 wt% of units of a vinyl monomer copolymerizable therewith.

The present invention also provides a method for
5 producing a thermoplastic resin molded product, which comprises simultaneously supplying to and molding by a molding machine, from 10 to 40 wt% of the thermoplastic resin mixture (I) as defined above and from 60 to 90 wt% of an ABS resin (II).

10 Now, the present invention will be described in detail with reference to the preferred embodiments.

Firstly, the acrylic rubbery polymer of component (A) useful for the thermoplastic resin mixture (I) of the present invention will be described.

15 The acrylate monomer may, for example, be methyl acrylate, ethyl acrylate, butyl acrylate, hexyl acrylate, cyclohexyl acrylate, octyl acrylate, hydroxyethyl acrylate or methoxyethyl acrylate. Particularly preferred is butyl acrylate.

20 Said other copolymerizable monomer may, for example, be a styrene type monomer such as styrene, α -methylstyrene or t-butylstyrene, a vinyl cyanide monomer such as acrylonitrile or methacrylonitrile, a methacrylate monomer such as methyl methacrylate or butyl
25 methacrylate, an olefin monomer such as ethylene, propylene, 1-butene, isobutylene or 2-butene, or a vinyl ether monomer such as methyl vinyl ether, ethyl vinyl

ether or butyl vinyl ether. Particularly preferred is methyl methacrylate.

Further, the copolymerizable monomer may be a polyfunctional vinyl monomer such as divinylbenzene, ethylene glycol dimethacrylate, 1,3-butylene glycol dimethacrylate, 1,4-butylene glycol dimethacrylate, propylene glycol dimethacrylate, triallyl cyanurate, triallyl isocyanurate, trimethylolpropane trimethacrylate, allyl acrylate, vinyl acrylate, vinyl methacrylate, glycidyl acrylate or glycidyl methacrylate. Particularly preferred is ethylene glycol methacrylate.

Component (A) of the present invention is required to have units of an acrylate monomer. Otherwise, component (A) may be a mixture of two or more different types of component (A).

The glass transition temperature of component (A) of the present invention is at most 0°C, preferably at most -10°C. If the glass transition temperature exceeds 0°C, the impact strength of a molded product obtained by directly molding the thermoplastic resin mixture (I) and the ABS resin (II) tends to be low, and the chemical resistance tends to be inadequate.

Further, component (A) of the present invention has a gel content of at most 70 wt%, preferably at most 50 wt%. The gel content was obtained in such a manner that about 1.0 g of component (A) was accurately weighed (S_0 g) and put in a cage made of a 400 mesh stainless steel net,

which was immersed in 100 g of toluene and left to stand at 5°C for 24 hours, whereupon the cage was taken out, and insoluble substance of the polymer of component (A) was completely dried and weighed to obtain its weight S_1 g, whereupon the gel content was calculated by $(S_1/S_0) \times 100$ (%). If the gel content of component (A) exceeds 70 wt%, the chemical resistance of a thermoplastic resin molded product obtained by directly molding the thermoplastic resin mixture (I) and the ABS resin (II), tends to be inadequate.

Further, component (A) of the present invention has a solubility parameter of from 8.4 to 9.8 (cal/cc)^{1/2}, preferably from 8.4 to 9.4 (cal/cc)^{1/2}. The solubility parameter is the value as disclosed in "Polymer Handbook" published by John Wiley & Son (1989, third edition, section VII, p.519-559), and the solubility parameter δ_T of the copolymer was calculated on the basis that there is additivity in accordance with weight fractions. Namely, it was calculated from the following formula (I) wherein δ_n is the solubility parameter of a homopolymer of each individual (meth)acrylate monomer constituting the copolymer composed of m types of (meth)acrylate monomers, and W_n is its weight fraction:

$$\delta_T = \frac{\sum_{n=1}^{n=m} \delta_n W_n}{\sum_{n=1}^{n=m} W_n} \quad (1)$$

For example, the solubility parameter of an acrylic

rubbery polymer comprising 70 wt% of n-butyl acrylate and 30 wt% of methyl methacrylate is calculated to be 9.0 (cal/cc)^{1/2} by inserting into the formula (1) the solubility parameter of n-butyl acrylate of 8.8 (cal/cc)^{1/2} and the solubility parameter of methyl methacrylate of 9.5 (cal/cc)^{1/2}.

If the solubility parameter of component (A) departs from the above range, the chemical resistance of a molded product obtained by directly molding the thermoplastic resin mixture (I) and the ABS resin (II), tends to be inadequate.

The method for producing component (A) of the present invention is not particularly limited. However, production by emulsion polymerization is industrially advantageous, and conventional techniques for emulsion polymerization can be used as they are.

Now, the vinyl copolymer of component (B) will be described.

The aromatic vinyl monomer may, for example, be a styrene type monomer such as styrene, α -methylstyrene, vinyltoluene, t-butylstyrene or chlorostyrene, or a substituted monomer thereof. Particularly preferred is styrene.

The vinyl cyanide monomer may, for example, be acrylonitrile, methacrylonitrile or α -chloroacrylonitrile. Particularly preferred is acrylonitrile.

Further, the vinyl monomer copolymerizable therewith may, for example, be an acrylate monomer such as methyl acrylate or ethyl acrylate, a methacrylate monomer such as methyl methacrylate or ethyl methacrylate, a vinyl
5 carboxylic acid monomer such as acrylic acid or methacrylic acid, or a monomer such as acrylic acid amide or methacrylic acid amide.

This vinyl copolymer of component (B) comprises from 60 to 80 wt% of units of an aromatic vinyl monomer, from
10 20 to 40 wt% of units of a vinyl cyanide polymer and from 0 to 20 wt% of units of a vinyl monomer copolymerizable therewith. If the proportions depart from these ranges, the compatibility with component (A) tends to be poor, and the impact strength of a molded product obtained by
15 directly molding the thermoplastic resin mixture (I) and the ABS resin (II) tends to be low.

For the polymerization method, any conventional polymerization technique may be employed. For example, suspension polymerization, emulsion polymerization or
20 solution polymerization may be employed.

The thermoplastic resin mixture (I) of the present invention comprises from 40 to 80 wt%, preferably from 50 to 75 wt%, of the acrylic rubbery polymer of component (A) and from 20 to 60 wt%, preferably from 25 to 50 wt%,
25 of the vinyl copolymer of component (B).

If the acrylic rubbery polymer of component (A) is less than 40 wt%, not only it will be economically

disadvantageous to obtain a molded product having desired chemical resistance by directly molding it with the ABS resin (II), but also impact strength of the molded product tends to be low. On the other hand, if it
5 exceeds 80 wt%, the appearance of a molded product formed by direct molding of the thermoplastic resin mixture (I) and the ABS resin (II) tends to be poor.

If the vinyl copolymer of component (B) is less than 20 wt%, the appearance of a molded product formed by
10 direct molding of the thermoplastic resin mixture (I) and the ABS resin (II) tends to be poor. On the other hand, if it exceeds 60 wt%, not only it will be economically disadvantageous to obtain a molded product having desired chemical resistance by directly molding it with the ABS
15 resin, but also impact strength of the molded product tends to be low.

The method for melt mixing components (A) and (B) for the preparation of the thermoplastic resin mixture (I) of the present invention, is not particularly limited, and
20 any conventional means may be employed. As such a means, a Banbury mixer, a mixing roll or an extruder such as a single screw or twin screw extruder, may, for example, be mentioned. Further, when both components (A) and (B) are produced by emulsion polymerization, it is preferred that
25 predetermined amounts of a latex of component (A) and a latex of component (B) are blended, dehydrated and dried, and then they are melt-kneaded by the above method.

Then, a thermoplastic resin molded product of the present invention can be obtained by supplying to and molding by a molding machine the above-mentioned thermoplastic resin mixture (I) and the ABS resin (II).

5 The ABS resin (II) to be used in the present invention, may, for example, be a resin obtained by polymerizing at least two monomers selected from an aromatic vinyl monomer, a vinyl cyanide monomer, a maleimide monomer and a methacrylate monomer, in the
10 presence of at least one rubbery polymer selected from a butadiene polymer, a butadiene-styrene copolymer, an ethylene-propylene copolymer, an ethylene-propylene-diene copolymer and an acrylate polymer.

 The aromatic vinyl monomer and the vinyl cyanide
15 monomer may, for example, be the aromatic vinyl monomer and the vinyl cyanide monomer as described above for component (B) of the thermoplastic resin mixture (I), and the methacrylate monomer may, for example, be methyl methacrylate or ethyl methacrylate. The maleimide
20 monomer may, for example, be maleimide, N-methyl maleimide, N-ethyl maleimide, N-propyl maleimide, N-cyclohexyl maleimide or N-phenyl maleimide.

 Further, to adjust the amount of the rubber component in the resin, a polymer made of the same monomer
25 components as the monomers constituting the resin may be mixed thereto. However, such a polymer may not necessarily be made of the same monomer components. For

example, when styrene and an acrylonitrile monomer are used as the monomer components, a polymer of a monomer mixture comprising styrene, acrylonitrile and α -methylstyrene, may be mixed thereto.

5 Specific examples of the ABS resin (II) to be used in the present invention include ABS (acrylonitrile-butadiene-styrene) resin, α -methylstyrene-type heat resistant ABS (acrylonitrile-butadiene- α -methylstyrene; acrylonitrile-butadiene- α -methylstyrene-styrene) resin,
10 maleimide-type heat resistant ABS (acrylonitrile-butadiene-N-phenylmaleimide-styrene) resin, AES (acrylonitrile-EPDM-styrene) resin, AAS (acrylonitrile-acrylate-styrene) resin and MBS (methyl methacrylate-butadiene-styrene; methyl methacrylate-acrylonitrile-
15 butadiene-styrene) resin. However, the ABS resin (II) is not limited to such specific examples.

To the thermoplastic resin mixture (I) of the present invention, an antioxidant, an ultraviolet absorbing agent, a plasticizer, a lubricant and a coloring agent
20 may be incorporated depending upon the particular purpose. It is also possible to supply these additives at the same time as supplying the thermoplastic resin mixture (I) and the ABS resin (II) of the present invention to the molding machine.

25 Further, the ABS resin (II) may preliminarily be mixed to the thermoplastic resin mixture (I) of the present invention within a range not to depart from the

object of the present invention, specifically within a range of from 0 to 20 wt%.

The composition at the time of directly molding the thermoplastic resin mixture (I) and the ABS resin (II),
5 comprises from 10 to 40 wt%, preferably from 15 to 35 wt%, of the thermoplastic resin mixture (I) and from 60 to 90 wt%, preferably from 65 to 85 wt%, of the ABS resin (II). If the thermoplastic resin mixture (I) is less than 10 wt%, the resulting molded product would have no
10 adequate chemical resistance. On the other hand, if it exceeds 40 wt%, the appearance of the molded product tends to be poor.

The molding machine to be used in the present invention may, for example, be an injection molding
15 machine, a sheet-forming machine, a blow molding machine or a injection-blow molding machine, but it is not limited to such specific examples.

In the present invention, the method for supplying the thermoplastic resin mixture (I) and the ABS resin
20 (II) to the molding machine may, for example, be a method wherein they are preblended by a conventional apparatus such as a tumbler mixer or a V-blender, and the preblended composition is supplied to the molding machine, or the two materials are separately and
25 quantitatively supplied to the inlet of the molding machine. However, the method for supplying is not particularly limited. Further, depending upon the

purpose, a coloring agent or a coloring agent master batch may be supplied simultaneously.

The temperature set for the cylinder of the molding machine is preferably from 220 to 250°C. Further, in the case of injection molding, a conventional stationary mixer of e.g. Sulzer type, Kenics type or Toray type may be provided between the nozzle and the cylinder of the molding machine, whereby a molded product having an appearance of higher quality can be obtained.

Further, the screw of the injection molding machine may be a full-flighted screw which is most common. However, a screw of dumble type, pin type or Maddock type, having higher kneading efficiency, can be used.

Now, the present invention will be described in further detail with reference to Examples. However, it should be understood that the present invention is by no means restricted by such specific Examples.

In the Examples, "parts" and "%" mean "parts by weight" or "% by weight", respectively, unless otherwise specified.

TEST EXAMPLE 1

Preparation of acrylic rubbery polymer (A)

120 Parts of pure water and 4 parts of sodium alkyldiphenyl ether disulfonate were charged into an autoclave and heated to a temperature of 65°C with stirring. An aqueous solution having 0.005 part of ferrous sulfate heptahydrate, 0.01 part of tetrasodium

ethylenediamine tetraacetate dihydrate and 0.3 part of sodium formaldehyde sulfoxylate dihydrate dissolved in 10 parts of pure water, was added thereto. Then, 20 parts out of 100 parts of the mixture of monomers constituting
5 the acrylic rubbery polymer (A) as identified in Table 1, was put into the autoclave, and the rest of 80 parts was uniformly continuously added over a period of 6 hours together with an aqueous solution having 0.05 part of potassium persulfate dissolved in 20 parts of pure water.
10 After completion of the addition, the mixture was cooled to obtain a latex of an acrylic rubbery polymer A-1 to A-4. The physical properties of these acrylic rubbery polymers are also shown in Table 1.

Table 1

No.	n-Butyl acrylate (%)	Methyl methacrylate (%)	Ethylene glycol dimethacrylate (%)	Acrylonitrile (%)	Glass transition temp. (°C)	Gel content (%)	Solubility parameter (cal/cc) ^{1/2}
A-1	69.7	29.9	0.4		-21	47	9.0
A-2	84.6	14.9	0.5		-39	40	8.9
A-3	69.7		0.4	29.9	2	1	9.9
A-4	68.6	29.4	2.0		-20	76	9.0

The physical properties in Table 1 were determined by the following methods.

(1) Glass transition temperature: A part of the emulsion of component (A) obtained by emulsion polymerization was
5 taken out and dropped into methanol to obtain a solid, which was dried, and the glass transition temperature was measured by 910 differential scanning calorimeter and 990 thermal analyzer, as Du Pont measuring apparatus.

(2) Gel content: A part of the emulsion of the polymer of
10 component (A) was taken out and dropped into toluene to obtain a solid, which was dried. About 1.0 g of the dried solid was accurately weighed, and the gel content was measured and calculated by the method as described above.

15 (3) Solubility parameter: The solubility parameter of the acrylic rubbery polymer of component (A) was calculated by the method as described above.

TEST EXAMPLE 2

Preparation of vinyl copolymer (B)

20 150 Parts of pure water and 2 parts of potassium stearate were charged into an autoclave and heated to a temperature of 50°C with stirring. Then, an aqueous solution having 0.005 part of ferrous sulfate heptahydrate, 0.01 part of tetrasodium ethylenediamine
25 tetraacetate dihydrate and 0.3 part of sodium formaldehyde sulfoxylate dihydrate dissolved in 10 parts of pure water, was added thereto. Then, 100 parts of a

mixed liquid comprising 75% of styrene and 25% of acrylonitrile, and 1.0 part of α -methylstyrene dimer were continuously added thereto over a period of 4 hours. After completion of the addition of the monomer mixture,
5 0.1 part of tert-butyl peroxyacetate was added thereto, and the temperature of the reaction solution was raised to 70°C. Stirring was continued for further 2 hours to complete the polymerization to obtain a latex of vinyl copolymer B-1. The weight average molecular weight of
10 this vinyl copolymer B-1 was 225,000.

TEST EXAMPLE 3

Preparation of vinyl copolymer (B)

A latex of vinyl copolymer B-2 was prepared in the same manner as in Test Example 2 except that the amounts
15 of styrene and acrylonitrile were changed to 100 parts of a mixed liquid comprising 85% of styrene and 15% of acrylonitrile, and α -methylstyrene dimer was changed to 0.7 part. The weight average molecular weight of this vinyl copolymer B-2 was 243,000.

20 The weight average molecular weights of B-1 and B-2 were obtained as weight average molecular weights as calculated as polystyrene, using as a sample a solid obtained by sampling a part of the emulsion of the polymer of component (B), followed by methanol
25 precipitation and employing "SHODEX GPC SYSTEM-21" manufactured by Showa Denko K.K. and using a calibration curve prepared by using polystyrene having a standard

molecular weight.

TEST EXAMPLE 4

Preparation of thermoplastic resin mixture (I)

Predetermined amounts of latexes of acrylic rubbery
5 polymer (A) and vinyl copolymer (B) were blended, and an
aqueous calcium chloride solution was added thereto,
whereupon a precipitate precipitated at 90°C was
collected by filtration and dehydrated. This precipitate
was dried and pelletized by a single screw extruder to
10 obtain thermoplastic resin mixture (I). The
compositional proportions are shown in Table 2.

Table 2

15

20

No.	Amount of component (A)	Amount of component (B)
I-1	A-1 50	B-1 50
I-2	A-2 50	B-1 50
I-3	A-1 60	B-1 40
I-4	A-1 50	B-2 50
I-5	A-3 50	B-1 50
I-6	A-4 50	B-1 50
I-7	A-1 85	B-1 15

As the ABS resin (II), ABS resin "GR-1500" manufactured by Denki Kagaku Kogyo K.K. was employed. The impact strength and chemical resistance of this ABS resin are shown as Reference Example in Table 3.

5 EXAMPLES 1 to 5

Thermoplastic resin mixture I-1, I-2 or I-3 and the ABS resin were, respectively, supplied by quantitative feeders to an injection molding machine in the proportions as identified in Table 3 to prepare a test
10 specimen. As the molding machine, a stationary mixer (mixing nozzle) TMN-16-06, manufactured by Toray Engineering K.K. was attached to an injection molding machine K-125, manufactured by Kawaguchi Tekko K.K. Other molding conditions were as follows.

15 Temperature set for the cylinder: 220°C
 Injection pressure: minimum filling pressure+5 kg/cm²G
 Injection rate: 70%
 Mold temperature: 40°C
 Screw: full-flighted type

20 Using the test specimen thus obtained, measurement of the Izod impact strength, evaluation of the chemical resistance and evaluation of the appearance were carried out.

Table 3

		Reference Example	Examples				
			1	2	3	4	5
5	Proportions (%)	I-1	20			30	
		I-2		20			10
		I-3			20		
		ABS resin	80	80	80	70	90
10	Evaluation results	Impact strength (kg-cm/cm)	32	38	35	43	27
		Chemical resistance (min)	>120	>120	>120	>120	73
		Appearance	○	○	○	○	○

15

COMPARATIVE EXAMPLES 1 to 5

Molding and evaluation were carried out in the same manner as in Examples except that thermoplastic resin mixtures I-1, I-4 to I-7 and the ABS resin were used in the proportions as identified in Table 4.

20

COMPARATIVE EXAMPLE 6

20% of thermoplastic resin mixture I-1 and 80% of the ABS resin were extruded by a 40 mmφ single screw extruder at a temperature of 230°C to obtain pellets. Using the pellets, a test specimen was prepared under the same molding conditions as in Examples. The evaluation results are shown in Table 4.

25

Table 4

			Comparative Examples					
			1	2	3	4	5	6*
5	Proportions (%)	I-1					5	20
		I-4	20					
		I-5		20				
		I-6			20			
		I-7				12		
		ABS resin	80	80	80	88	95	80
10	Evaluation results	Impact strength (kg-cm/cm)	14	25	22	30	21	29
		Chemical resistance (min)	7	2	8	65	7	>120
		Appearance	×	○	○	×	○	○
15								

* Evaluation of extruded pellets

Measurement of the physical properties and evaluation of the appearance were carried out in accordance with the following methods.

- (1) Izod impact strength: Using a notched test specimen having a thickness of 1/4 inch, measurement was carried out in accordance with ASTM D-256.
- (2) Chemical resistance: A test specimen of No. 1 according to JIS K-7113 was secured to a jig with a deflection of 50 mm, then coated with ethylene glycol

monoethyl ether and left to stand at a temperature of 23°C, whereby the time until its breakage was represented by minutes.

(3) Appearance: A square plate having a size of 127 × 127 mm and a thickness of 2 mm was molded by a film gate under the above-mentioned injection molding conditions, whereupon the appearance of the molded product was visually inspected and evaluated under the following standards:

- 10 ○: No defects (no peeling or silver streaks) are observed on the surface or at the gate portion.
- ×: Defects (peeling or silver streaks) are observed on the surface or at the gate portion.

As shown by the Examples in Table 3, molded products prepared by directly molding the thermoplastic resin mixture (I) and the ABS resin (II) of the present invention, have excellent chemical resistance, and they are also excellent in impact strength and appearance. On the other hand, as shown by Comparative Examples in Table 20 4, the molded products prepared by directly molding the thermoplastic resin mixture (I) and the ABS resin (II) which depart from the ranges of the present invention, are not able to maintain such excellent qualities.

As described in the foregoing, the thermoplastic resin mixture of the present invention is capable of being directly molded together with an ABS resin, and the obtained molded product has excellent chemical resistance

and thus is very useful within a wide range of fields such as fields of industrial parts and household electric parts.



CLAIMS:

1. A thermoplastic resin molded product obtained by supplying to and molding by a molding machine, from 10 to 40 wt% of a thermoplastic resin mixture (I) and from 60
5 to 90 wt% of an ABS resin (II), wherein said thermoplastic resin mixture (I) is prepared by melt mixing from 40 to 80 wt% of an acrylic rubbery polymer (A) which is a homopolymer of an acrylate monomer or a copolymer of an acrylate monomer with other
10 copolymerizable monomer, having a glass transition temperature of at most 0°C, a gel content of at most 70% and a solubility parameter of from 8.4 to 9.8 (cal/cc)^{1/2} and from 20 to 60 wt% of a vinyl copolymer (B) comprising from 60 to 80 wt% of units of an aromatic vinyl monomer,
15 from 20 to 40 wt% of units of a vinyl cyanide monomer and from 0 to 20 wt% of units of a vinyl monomer copolymerizable therewith.
2. The thermoplastic resin molded product according to Claim 1, wherein said acrylate monomer for component (A)
20 is methyl acrylate, ethyl acrylate, butyl acrylate, hexyl acrylate, cyclohexyl acrylate, octyl acrylate, hydroxyethyl acrylate or methoxyethyl acrylate.
3. The thermoplastic resin molded product according to Claim 1, wherein said other copolymerizable monomer for
25 component (A) is a styrene type monomer, a vinyl cyanide monomer, a methacrylate monomer, an olefin monomer, a vinyl ether monomer, or a polyfunctional vinyl monomer.



4. The thermoplastic resin molded product according to Claim 1, wherein the glass transition temperature of component (A) is at most -10°C .
5. The thermoplastic resin molded product according to
5 Claim 1, wherein the gel content of component (A) is at most 50 wt%.
6. The thermoplastic resin molded product according to Claim 1, wherein the solubility parameter of component (A) is from 8.4 to $9.4 (\text{cal/cc})^{1/2}$.
- 10 7. The thermoplastic resin molded product according to Claim 1, wherein the aromatic vinyl monomer for component (B) is styrene, α -methylstyrene, vinyltoluene, t-butylstyrene or chlorostyrene.
8. The thermoplastic resin molded product according to
15 Claim 1, wherein the vinyl cyanide monomer for component (B) is acrylonitrile, methacrylonitrile or α -chloroacrylonitrile.
9. The thermoplastic resin molded product according to Claim 1, wherein the vinyl monomer copolymerizable
20 therewith for component (B) is an acrylate monomer, a methacrylate monomer, a vinyl carboxylic acid monomer, an acrylic acid amide or a methacrylic acid amide.
10. The thermoplastic resin molded product according to Claim 1, wherein the thermoplastic resin mixture (I)
25 comprises from 50 to 75 wt% of the acrylic rubbery polymer (A) and from 25 to 50 wt% of the vinyl copolymer (B).



- 26 -

11. The thermoplastic resin molded product according to
Claim 1, which is obtained by supplying to and molding by
a molding machine, from 15 to 35 wt% of the thermoplastic
resin mixture (I) and from 65 to 85 wt% of the ABS resin
5 (II).

12. A method for producing a thermoplastic resin molded
product, which comprises simultaneously supplying to and
molding by a molding machine, from 10 to 40 wt% of the
thermoplastic resin mixture (I) as defined in Claim 1 and
10 from 60 to 90 wt% of an ABS resin (II).