

# 가, 「 PP · ABS 」

가 80% 가  
 가 CAFE(Corporate Average Fuel Economy: ) 90  
 가 Clean Air Act 가  
 가 가 Steel  
 가 가

| ( : / ) |           |                |             |       |                |
|---------|-----------|----------------|-------------|-------|----------------|
|         | PBT/PC    |                |             | 2,800 | LUPOX TE-5011, |
|         | Facia     | XENOY 1102     |             | 3,400 | 5020           |
|         | Back Beam | XENOY 1402     |             | 700   |                |
|         |           | -              | -           | 6,900 | -              |
|         | PP/EPR    | LUPOL TE-5006B |             | 1,200 |                |
|         | Facia     | LUPOL TE-5008B |             | 150   |                |
|         | (Steel)   | E353G          |             | 250   |                |
|         | Back Beam | E373F          |             | 200   |                |
|         |           |                |             | 800   |                |
|         |           | -              | -           | 2,600 | -              |
| ( )     | PP/EPR    | LUPOL HI-5002D | LPG(GS)     | 100   | ( 20 )         |
|         |           | ( )            | VANET(1 )   | 50    |                |
|         |           | LUPOL HI-5002S |             | 400   |                |
|         |           |                |             | 100   |                |
|         |           | -              | -           | 650   | -              |
|         | RIM       |                |             | 600   | /              |
|         | PP/EPR    | LUPOL TE-5006K | (N/B)       | 360   | N/B:Notch Back |
|         |           |                | (H/B Front) | 200   | H/B:Hatch Back |
|         |           |                | (POP)       | 60    |                |
|         |           |                |             | 240   |                |
|         |           |                |             | 60    |                |
|         |           |                |             | -     |                |
|         |           | LUPOL TE-5006B |             | 400   |                |
|         |           | E353G          |             | 90    |                |
|         |           |                |             | 300   |                |
|         |           | LUPOL TE-5006K | WIT ( )     | 400   |                |
|         |           | H4800          | (Festiva)   | 400   | FORD OEM       |
|         |           | -              | -           | 2,510 | -              |
|         | RIM       |                |             | 180   |                |
|         |           |                |             | 120   |                |
|         |           | -              | -           | 300   |                |

가  
 가 EP

가  
 EP 가 ( )  
 75 1 1800KG 90 1200KG  
 1000KG  
 가 75  
 5% 10% 10%  
 3% 9% 가  
 75 60%  
 40% 가

| ( ) ( : KG/ ) |       |       |       |        |        |  |
|---------------|-------|-------|-------|--------|--------|--|
|               | Excel | 1     | Excel | 2      | Scoupe |  |
| PE            | 3.07  | 2.32  | 2.04  | 2.90   | 6.83   | Duct, Sheet Foam                             |
| EVA           | 1.22  | 0.86  | 1.60  | 0.55   | 0.75   | Mud Guard                                    |
| PP            | 18.80 | 21.92 | 16.43 | 19.25  | 26.88  | Bumper Cover, Door<br>Garnish(EMPP, TPO )    |
| PVC           | 8.70  | 7.73  | 7.94  | 7.73   | 5.29   | W/Line Molding, Door Trim                    |
| ABS           | 16.69 | 11.66 | 12.18 | 10.82  | 19.03  | Clush/Pad, B/Panel Molding                   |
| PMMA          | 0.98  | 0.84  | 1.04  | 1.32   | 3.07   | Lamp Lens                                    |
| PU            | 9.39  | 17.30 | 15.38 | 20.81  | 20.42  | Bumper Absorber, Pad Foam                    |
| BMC           | 0.0   | 1.24  | 1.38  | 1.62   | 0.0    | Head/Lamp Reflector                          |
| PC/PBT        | 0.0   | 0.52  | 15.21 | 20.11  | 0.20   | Bumper System                                |
| PA            | 2.13  | 5.74  | 5.86  | 6.52   | 2.28   | Wheel Cover, Fuel System<br>(PA-6, 6/6, 11 ) |
| PC            | 0.17  | 1.93  | 2.50  | 2.28   | 0.33   | Head/Lamp Lens                               |
|               | 1.84  | 7.94  | 7.53  | 8.49   | 22.25  | Cloth , Carpet                               |
|               | 62.99 | 79.55 | 89.09 | 102.39 | 107.35 | (Board )                                     |
|               | 900   | 1,018 | 1,003 | 1,231  | 1,337  |  |
|               | 7.00  | 7.81  | 8.89  | 8.32   | 8.02   |  |

PP, PVC,  
PE, ABS

가

SMC RIM

가 F RTP(Fiber Reinforced Thermoplastic)  
 PP 가  
 Facia, Foam, Beam PP ,  
 PP , 100% PP  
 가  
 가  
 가 ABS PP  
 PP 가 가 가  
 HDPE  
 가가

가 25~30% 1

4 50%

4가

Facia Back beam PBT/PC( ) 7000  
 PP/EPDM(Facia) Steel(Back Beam) 6000 , RIM Urethane(Facia) · Steel(Back beam)  
 1700 TPE/PBT 7000 , EMPP 2600 8500

(GE) (2800 ), (3400 ), (700 ) 6900  
 . EMPP TE 가 (1200 ), (150 )  
 E353G가 1300 EMPP

2600

EMPP EMPP 650 , RIM 600 1250  
 EMPP LPG(GS) 100 , VANET( ) 50

(400 ), (100 ) EMPP 가  
 600 가  
 EMPP

EMPP 2500 , RIM 300 2800  
 . EMPP TE-5006K가 620 , 240 , 60 , WIT 400  
 TE-5006B 400  
 E353G (KD) 90 , H4800 OEM

FESTIVA 400 7 300  
 RIM (180 ), (120 )  
 6 , 300g,  
 1.5KG, 가 280g  
 33.6KG Seat 4.7KG, Consol 995g,  
 Inpanel 5KG, Pillar 3.5KG, 2.5KG, Wheel cap 3KG  
 Air Duck Block Copolymer B-310  
 , FAN A-

361

1( 900KG) 62.99KG  
 7% , 2(1018KG) 79.55KG 7.81%, (1003KG) 89.1KG  
 8.89%, (1337KG) 107.35KG 8.02%  
 ( 1231KG) 102.39KG 8.32% PE 2.9KG,  
 EVA 0.55KG, PP 26.88KG, PVC 7.73KG, ABS 10.82KG 가 41.25KG 40.3%

PP 19% PP 가  
 PP가 37.5% pvc가 10.3%, ABS  
 9.9%, EVA 5.3% 가 가 84%

가 Primerless 가 , PP Based  
 TPE PVC

| ( : / )             |  |                |                                 |                     |                       |  |
|---------------------|--|----------------|---------------------------------|---------------------|-----------------------|--|
|                     |  |                |                                 |                     |                       |  |
| Intake Manifold     |  | Steel          | Nylon 66                        | X- ( ) 94 3-4 (95 ) | 720                   | · 92 1 Proto Mold Test<br>· Lost Core 가<br>· BASF, |
| Air Duct            |  | E315 (EMPP)    | LUPOL TE-5009 (EMPP)            |                     | 60<br>60              | · Blow Molding Test 가                              |
| Back Mirror B/Plate |  | Al-Die Casting | LUPOX GP-2300                   | X- J- ( )           | 60<br>100<br>60<br>15 | · 92 2<br>· Al 60% 가<br>· 20% 가<br>Proto Mold Test |
|                     |  | "              | "                               |                     | 120                   | ·  |
| Out Side Handle     |  | Al-Die Casting | XENOY (PC/PBT) LUPOX TE-5011    | X-                  | -<br>180<br>120       | · XENOY  |
|                     |  | "              | "                               |                     | -                     |  |
| Fender              |  | Steel          | Noryl GTX                       |                     | 150                   | · GE   |
| Fuel-tank           |  | "              | HDPE                            | ( , )               | -                     | · BASF, ( )  |
|                     |  | Steel          | HDPE                            |                     | -                     | ·  |
| Rockarm cover       |  | Al-Die Casting | NYLON 6 + G/F                   | X-                  |                       | · Proto Mold<br>Try out                            |
| Back Beam           |  | Steel Reinf    | XENOY                           |                     | 1,600                 | · GE XENOY<br>T/Out                                |
|                     |  |                | LUPOX TE-5020                   | (95 )               | 620<br>370            | · XENOY  |
|                     |  |                | AZDEL                           | X- (94)             | -                     | · PP Form AZDEL Steel (95 )                        |
|                     |  | "              | LUPOX TE-5011                   |                     | 600                   | · XENOY  |
|                     |  | "              | AZEDL (G/M TP) X-Sheet          | (NB-7)              | 400                   | · 出光   |
| Wheel Cover         |  | Nylon66 ( , )  | NORYL GTX LUPOY HR-5007A G15300 | -                   | -                     | · NORYL GTX<br>T/Out                               |
|                     |  | Nylon6         | NORYL GTX LUPOY HR-5007A        |                     | 50                    | · Crack T/out                                      |

Steel .

ABS

PP

Steel

Back beam, Intake Manifold Back Beam 가

1600 ,

LUPOX TE-5020 700

X- ( )

PP-FOAM AZDEL(GLA-SS MAT TP)

Steel

95

Steel TE-5011 600

X-SHEET

AZDEL

出光化學(IDEMITSU)

MUSSO(F-J CAR) BACK BEAM

GE

Intake Manifold

Steel

PA66

X-

720

BASF

가

STEEL

HDPE

| ( : / )                        |   |                  |                                      |   |            |                          |
|--------------------------------|---|------------------|--------------------------------------|---|------------|--------------------------|
| In Pnl<br>(Main Core)          |   |                  | NORYL<br>LUPOSGP-2200                |   | 120<br>400 | Proto Mold               |
|                                |   | "                | LUPOS<br>GP-2200<br>LUPOL<br>GP-2200 |   | 50<br>350  | .87<br>.89               |
|                                |   | "                | LUPOL<br>HI-5302D                    | - | 230<br>60  |                          |
| Hood                           |   | Steel            | SMC                                  | - | -          | .96<br>20% , 8~9KG/      |
| Trunk Lid                      | " | "                | "                                    | - | -          | .96                      |
| Power<br>Window MTR<br>Housing | " | Al-<br>D/Casting | PET                                  | - | -          | .93                      |
| Fuel Filler<br>Neck            | " | Steel+<br>Rubber | Nylon12<br>+Acetal                   | - | -          | .94                      |
| Clutch<br>Master<br>Cylinder   | " | Al-<br>D/Casting | PA66+GF                              | - | -          | .94                      |
| QTRFixed<br>Glass Molding      | " | PU-RIM           | PVC                                  | - | -          | .94                      |
| Console                        | " | ABS              | HCPP                                 | - | -          | Scratch<br>Honda, Nissan |
| ACC Pedal                      | " | Steel            | Nylon66/GF                           | - | -          | .94                      |
| RR Seat<br>Back Frame          | " | Steel            | HDPE<br>(Blow Molding)               | - | -          | .95<br>Folding Type      |
| FRT Seat<br>Frame              | " | Steel            | Nylon66/GF                           | - | -          | .96                      |
| Bumper E/<br>Absorber<br>Foam  | " | PU Foam          | PP Foam<br>(EPP)                     | - | -          | .94<br>(KOSPA )          |

BASF

7

(NB-7)

B A C K  
M I L L O R  
B / P L A T E

94

3~4

X- ( )

J-2 ( )

60%

가

Rock Arm Cover

PA6/GF

-

X-

T/OUT

| ( / 1.8, 2.0 ( : g, / ) |   |  |                                   |                             |                            |  |
|-------------------------|---|--|-----------------------------------|-----------------------------|----------------------------|--|
|                         |   |  |                                   |                             |                            |  |
|                         | Air Duct<br>Blower Fan  | B-310  | -<br>180                          | -<br>36                     | PL                         | (Block/Blow)<br>A-361                          |
|                         | Battery Case<br>Rear Lamp Housing   | JI-320<br>B-153C,                              | 1,000<br>500                      | 200<br>100                  | Apollo                     | (Block/Inj)<br>/ 50/50                         |
| 가                       | Brake Reservoir   | B-310  | 280                               | 56                          | PL                         |  |
| 1) Bumper               | Bumper<br>- FRT/Rear Facia<br>- Energy Absorber<br>- Back Beam<br>- Reinforcement | XENOY<br>-<br>XENOY<br>-                       | 12,000<br>-<br>11,600<br>-        | 2,400<br>-<br>2,320<br>-    | Apollo<br>-<br>Apollo<br>- | GE<br>-<br>GE<br>-                             |
| 2)                      | Fuel Tank   | Steel  | -                                 | -                           | -                          | -  |
| 3) Radiator             | Washer Tank<br>Radiator Tank  | B-310<br>B-310                                 | 350<br>350                        | 70<br>70                    | PL<br>PL                   |  |
| 4) Seat                 | Seat Back Frame RH/LH<br><br>Cover Seat Side RH/LH<br>Timing Belt Cover           | :Steel<br>(GL):5202B<br><br>Lucky              | 4,000<br><br>380<br>375           | 240<br><br>76<br>75         | Apollo<br>PL<br><br>Lucky  | GL:6 / , 190g×2EA, HCJ-350 가<br>Lucky 가        |
| 5) Console              | Cosole  | HCA-352S                                       | 995                               | 199                         | Apollo , PL                | (GLS ):Apollo 70%<br>GLS : PL 30%              |
| 6) Inpanel              | Instrument Panel<br>- Skin<br>- Cushion<br>- Core<br>Glove Box<br>Inpanel Lower   | PVC+ABS<br>PU Foam<br>ABS+GF<br>Lucky<br>Lucky | -<br>-<br>2,700<br>1,200<br>1,200 | -<br>-<br>540<br>240<br>240 | Apollo<br>PL<br>Apollo     | PVC/ABS=50/50<br>HCA-352S<br>HCA-352S          |
| 7) Pillar               | A/B/C Pillar Trim RH/LH   | Lucky  | 3,500                             | 700                         | Lucky                      |  |
| 8) Door                 | Door Trim FRT/RR RH/LH<br>- Skin<br>- Cushion<br>- Core                           | PVC<br>PP Foam(EPP)<br>Resin Felt              | -<br>-<br>-                       | -<br>-<br>-                 |                            | H-9020N<br>PP FOAM :                           |
| 9) Trunk                | Trunk Mat<br><br>Trunk Side/End Trim  | PP-Fiber/Wool<br>Paper<br>JI-320               | 1,500<br><br>1,000                | 300<br><br>200              |                            | PP-Fiber : Scrap PP+<br>Wool Paper : Polyester |
| 10) Head Liner          | Head Liner<br>- Skin<br>- Cushion<br>- Core                                       | Polyestert<br>PE Foam<br>Resin Felt            |                                   |                             |                            | H-9020N  |
| 11) Str'g Wheel         | Shroud Steering Column  | ABS  | 350                               | 70                          | Lucky                      |  |
| 12) Wheel Cap           | Wheel Cap<br>Wheel Cover<br>Mud Guard   | Noryl<br>-<br>-                                | 1,200<br>1,800<br>-               | 240<br>160<br>-             | Apollo<br>-<br>-           | 300g×4EA,<br>450g×4EA, 가                       |
| 13) DEF.                | Heating Duct<br>Heater Connection   | B-310<br>5200B                                 | 540<br>860                        | 108<br>172                  | PL<br>PL                   |  |

Console      Scrotch      Hood   Steel   SMC      96      8~9KG  
 Nissan, Honda가      20%      ABS      HCPP(      PP)  
 94      PU Foam      PP Foam(KOSPA      )  
 QTR Fixed Glass Molding 94      PU-RIM      PVC

가

가

2000      1      8~9%      가      100kg  
 25.9%      75%  
 500

| ( / 1.8, 2.0 ) ( : g, / ) |                         |            |       |     |       |                       |
|---------------------------|-------------------------|------------|-------|-----|-------|-----------------------|
| 14)                       | Side Garnish            | Lucky      | 600   | 120 | Lucky | ( Lucky) E-363C Lucky |
|                           | Mud Guard FRT/RR RH/LB  | -          | -     | -   |       |                       |
|                           | Cowl Top Cover          |            | 670   | 134 | PL    | A-354S                |
|                           | Door Scuff FRT/RR RH/LH | JI-350     | 360   | 72  | PL    | FRT:110g×2, RR:70g×2  |
|                           | Pull Handle             |            |       |     |       |                       |
|                           | Air Grill               | J-330      | 50    | 10  |       |                       |
|                           | Package Tray            |            |       |     |       |                       |
|                           | Wool Paper              | Polyester  | -     | -   |       |                       |
|                           | Core                    | Wood Stock | 1,300 | 260 |       |                       |

10%      95      25%, 2000      50%      96      6~7%      9~10%

가

가

10

가

( )

30%

50%

75%

가

가

가

가

가

가

가

가

가

가

가

가

PE PA · POM

가  
가

ABS -Methyl Styrene  
PPO

ABS/PS가

ABS/PBT, ABS/PA

PP가 EP

Base Polymer

PP  
PVC, ABS, PU가

PP가

가  
PP가

PP , ABS

PP

PP

PP  
EPR

가

Talc

가



三井石油化學/Himont

PP(HCPP)

PP  
가

가  
가 가 , PP 가

PP  
三井石油化學  
PP

PP

가

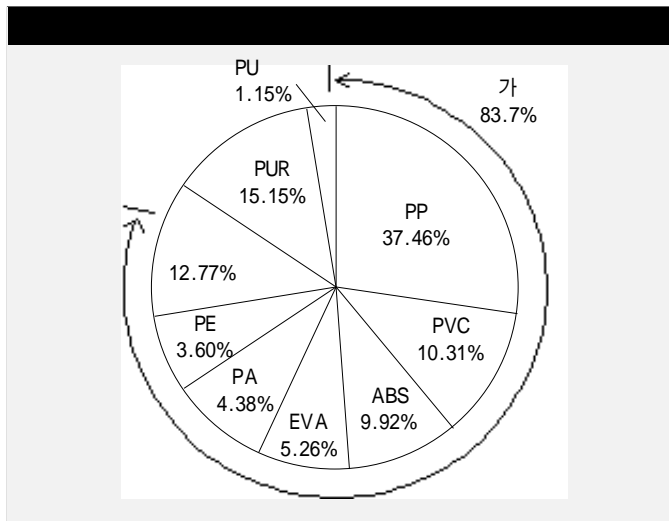
(NMR ) 95~97%

99%

ABS가

60

가



2  
ABS

가

가

110

ABS

2 가

2 가

Polymer Alloy가

ABS

PC

ABS

가 가

ABS

ABS

ABS

70%

宇部

ABS

가

I/P  
가

가

宇部

ABS

ABS/PC

CL

가

, Door Millor,

가

ABS

가

ABS

. ABS

EPR

AAS

AES

가 ABS

가

가

가

가

. ABS

ABS

ABS

ABS

. 宇部

ABS

가

ABS

가

GE Plastics가

. 宇部

GE Plastics

ABS