

< >

( ) 91 , 2856 8000  
 100.3% 가 .  
 91 20 1000 0.9% 가 72.7% ,  
 90 6 4000 91 25 9000 0.9%  
 91 가 가  
 가  
 , LAB( ) HAB( ) ,  
 619 8000 0.7% 가 , LAB  
 564 1.7%

< 1>

( : , %)

|   | 1988  | 1989   | 1990   | 1991   |
|---|-------|--------|--------|--------|
| 가 | 678.2 | 713.8  | 1426.2 | 2856.8 |
|   | 51.9  | 5.2    | 99.7   | 100.3  |
|   | 94.6  | 65.8   | 118.7  | 222.3  |
|   | 43.9  | 1.5    | 49.3   | 146.4  |
|   | 26.9  | 14.9   | 6.4    | 25.9   |
| 가 | 26.4  | 16.5   | 11.9   | 20.7   |
|   | 38.5  | 37.6   | 27.4   | 72.7   |
|   | 362.3 | 453.9  | 779.6  | 886.1  |
|   | 475.5 | 948.8  | 1245.0 | 1191.1 |
|   | 977.4 | 1556.7 | 2212.3 | 2291.1 |
|   | 294.6 | 483.4  | 670.3  | 777.1  |
|   | 200.8 | 315.1  | 778.6  | 750.3  |
|   | 508.4 | 808.2  | 1455.3 | 1531.3 |
|   | 278.4 | 367.4  | 376.9  | 376.9  |
|   | 469.0 | 748.5  | 756.9  | 759.7  |

< 2>

( : , , %)

|  | 1990    |        | 1991      |        |       | 1992( ) |        |      |
|--|---------|--------|-----------|--------|-------|---------|--------|------|
|  |         |        |           |        |       |         |        |      |
|  | 96,628  | 574.0  | 90,391    | 564.0  | 1.7   | 90,000  | 640.0  | 13.5 |
|  | 7,699   | 41.6   | 9,576     | 55.8   | 34.1  | 9,200   | 60.0   | 7.5  |
|  | 104,327 | 615.6  | 99,967    | 619.8  | 0.7   | 99,200  | 700.0  | 12.9 |
|  | 33,610  | 205.0  | 32,620    | 226.0  | 10.2  | 34,000  | 270.0  | 19.5 |
|  | 4,971   | 19.8   | 34,325    | 117.7  | 494.4 | 46,000  | 160.0  | 35.9 |
|  | 346,895 | 544.4  | 1,190,942 | 1854.3 | 240.6 |         | 1031.0 | 44.4 |
|  |         | 564.2  |           | 1972.0 | 249.5 |         | 1191.0 | 39.6 |
|  |         | 41.4   |           | 39.0   |       |         | 39.0   |      |
|  |         | 1426.2 |           | 2856.8 | 100.3 |         | 2200.0 | 22.9 |

) , kl

91  
 , 90 (LAB 19.74%, HAB 1.96%,  
 . 가 0.90%) 21.7%, 7.9%, ( 4.1%, 64.9%) 69%

90,91 LAB(Linear Alkylben-zene) 가  
 , LAS(Linear Alkylbenzene Sulfonate) ABS(Sodium Alkylbenzene Sulfonate)  
 AS(Alkyl Sulfate) AES(Alkyl Ester Sulfate)

90 13 2000

LAB

. 가, 91 3 4325 3 945 .  
2200 , 22.9% ,  
91 700 31.8%, 270 12.3%  
, 1191 54.1% .

< 1992/6/1 >