Coupling Coefficients

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Contents

1 Group C_1

1.1 $A \times A$

A	A	A
		α
α	α	1

2 Group C_i

2.1 $A_g \times A_g$

A_g	A_g	A_g
		α_g
α_g	α_g	1

2.2 $A_g \times A_u$

A_g	A_u	A_u
		α_u
α_g	α_u	1

2.3 $A_u \times A_g$

A_u	A_g	A_u
		α_u
α_u	α_g	1

2.4 $A_u \times A_u$

A_u	A_u	A_g
		α_g
α_u	α_u	1

3 Group C_2

3.1 $A \times A$

A	A	A
		α
α	α	1

3.2 $A \times B$

A	B	B
		β
α	β	1

3.3 $B \times A$

B	A	B
		β
β	α	1

3.4 $B \times B$

B	B	A
		α
β	β	1

4 Group C_s

4.1 $A' \times A'$

A'	A'	A'
		α
α	α	1

4.2 $A' \times A''$

A'	A''	A''
		β
α	β	1

4.3 $A'' \times A'$

A''	A'	A''
		β
β	α	1

4.4 $A'' \times A''$

A''	A''	A'
		α
β	β	1

5 Group C_{2h}

5.1 $A_g \times A_g$

A_g	A_g	A_g
		α_g
α_g	α_g	1

5.2 $A_g \times B_u$

A_g	B_u	B_u
		β_u
α_g	β_u	1

5.3 $A_g \times A_u$

A_g	A_u	A_u
		α_u
α_g	α_u	1

5.4 $A_g \times B_g$

A_g	B_g	B_g
		β_g
α_g	β_g	1

5.5 $B_u \times A_g$

B_u	A_g	B_u
		β_u
β_u	α_g	1

5.6 $B_u \times B_u$

B_u	B_u	A_g
		α_g
β_u	β_u	1

5.7 $B_u \times A_u$

B_u	A_u	B_g
		β_g
β_u	α_u	1

5.8 $B_u \times B_g$

B_u	B_g	A_u
		α_u
β_u	β_g	1

5.9 $A_u \times A_g$

A_u	A_g	A_u
		α_u
α_u	α_g	1

5.10 $A_u \times B_u$

A_u	B_u	B_g
		β_g
α_u	β_u	1

5.11 $A_u \times A_u$

A_u	A_u	A_g
		α_g
α_u	α_u	1

5.12 $A_u \times B_g$

A_u	B_g	B_u
		β_u
α_u	β_g	1

5.13 $B_g \times A_g$

B_g	A_g	B_g
		β_g
β_g	α_g	1

5.14 $B_g \times B_u$

B_g	B_u	A_u
		α_u
β_g	β_u	1

5.15 $B_g \times A_u$

B_g	A_u	B_u
		β_u
β_g	α_u	1

5.16 $B_g \times B_g$

B_g	B_g	A_g
		α_g
β_g	β_g	1

6 Group D_2

6.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

6.2 $A_1 \times B_1$

A_1	B_1	B_1
		β
α	β	1

6.3 $A_1 \times B_2$

A_1	B_2	B_2
		γ
α	γ	1

6.4 $A_1 \times B_3$

A_1	B_3	B_3
		ζ
α	ζ	1

6.5 $B_1 \times A_1$

B_1	A_1	B_1
		β
β	α	1

6.6 $B_1 \times B_1$

B_1	B_1	A_1
		α
β	β	1

6.7 $B_1 \times B_2$

B_1	B_2	B_3
		ζ
β	γ	1

6.8 $B_1 \times B_3$

B_1	B_3	B_2
		γ
β	ζ	1

6.9 $B_2 \times A_1$

B_2	A_1	B_2
		γ
γ	α	1

6.10 $B_2 \times B_1$

B_2	B_1	B_3
		ζ
γ	β	1

6.11 $B_2 \times B_2$

B_2	B_2	A_1
		α
γ	γ	1

6.12 $B_2 \times B_3$

B_2	B_3	B_1
		β
γ	ζ	1

6.13 $B_3 \times A_1$

B_3	A_1	B_3
		ζ
ζ	α	1

6.14 $B_3 \times B_1$

B_3	B_1	B_2
		γ
ζ	β	1

6.15 $B_3 \times B_2$

B_3	B_2	B_1
		β
ζ	γ	1

6.16 $B_3 \times B_3$

B_3	B_3	A_1
		α
ζ	ζ	1

7 Group C_{2v}

7.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

7.2 $A_1 \times B_2$

A_1	B_2	B_2
		ζ
α	ζ	1

7.3 $A_1 \times B_1$

A_1	B_1	B_1
		γ
α	γ	1

7.4 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

7.5 $B_2 \times A_1$

B_2	A_1	B_2
		ζ
ζ	α	1

7.6 $B_2 \times B_2$

B_2	B_2	A_1
		α
ζ	ζ	1

7.7 $B_2 \times B_1$

B_2	B_1	A_2
		β
ζ	γ	1

7.8 $B_2 \times A_2$

B_2	A_2	B_1
		γ
ζ	β	1

7.9 $B_1 \times A_1$

B_1	A_1	B_1
		γ
γ	α	1

7.10 $B_1 \times B_2$

B_1	B_2	A_2
		β
γ	ζ	1

7.11 $B_1 \times B_1$

B_1	B_1	A_1
		α
γ	γ	1

7.12 $B_1 \times A_2$

B_1	A_2	B_2
		ζ
γ	β	1

7.13 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

7.14 $A_2 \times B_2$

A_2	B_2	B_1
		γ
β	ζ	1

7.15 $A_2 \times B_1$

A_2	B_1	B_2
		ζ
β	γ	1

7.16 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

8 Group D_{2h}

8.1 $A_{1g} \times A_{1g}$

A_{1g}	A_{1g}	A_{1g}
		α_g
α_g	α_g	1

8.2 $A_{1g} \times B_{3u}$

A_{1g}	B_{3u}	B_{3u}
		ζ_u
α_g	ζ_u	1

8.3 $A_{1g} \times B_{1u}$

A_{1g}	B_{1u}	B_{1u}
		β_u
α_g	β_u	1

8.4 $A_{1g} \times B_{2u}$

A_{1g}	B_{2u}	B_{2u}
		γ_u
α_g	γ_u	1

8.5 $A_{1g} \times A_{1u}$

A_{1g}	A_{1u}	A_{1u}
		α_u
α_g	α_u	1

8.6 $A_{1g} \times B_{3g}$

A_{1g}	B_{3g}	B_{3g}
		ζ_g
α_g	ζ_g	1

8.7 $A_{1g} \times B_{1g}$

A_{1g}	B_{1g}	B_{1g}
		β_g
α_g	β_g	1

8.8 $A_{1g} \times B_{2g}$

A_{1g}	B_{2g}	B_{2g}
		γ_g
α_g	γ_g	1

8.9 $B_{3u} \times A_{1g}$

B_{3u}	A_{1g}	B_{3u}
		ζ_u
ζ_u	α_g	1

8.10 $B_{3u} \times B_{3u}$

B_{3u}	B_{3u}	A_{1g}
		α_g
ζ_u	ζ_u	1

8.11 $B_{3u} \times B_{1u}$

B_{3u}	B_{1u}	B_{2g}
		γ_g
ζ_u	β_u	1

8.12 $B_{3u} \times B_{2u}$

B_{3u}	B_{2u}	B_{1g}
		β_g
ζ_u	γ_u	1

8.13 $B_{3u} \times A_{1u}$

B_{3u}	A_{1u}	B_{3g}
		ζ_g
ζ_u	α_u	1

8.14 $B_{3u} \times B_{3g}$

B_{3u}	B_{3g}	A_{1u}
		α_u
ζ_u	ζ_g	1

8.15 $B_{3u} \times B_{1g}$

B_{3u}	B_{1g}	B_{2u}
		γ_u
ζ_u	β_g	1

8.16 $B_{3u} \times B_{2g}$

B_{3u}	B_{2g}	B_{1u}
		β_u
ζ_u	γ_g	1

8.17 $B_{1u} \times A_{1g}$

B_{1u}	A_{1g}	B_{1u}
		β_u
β_u	α_g	1

8.18 $B_{1u} \times B_{3u}$

B_{1u}	B_{3u}	B_{2g}
		γ_g
β_u	ζ_u	1

8.19 $B_{1u} \times B_{1u}$

B_{1u}	B_{1u}	A_{1g}
		α_g
β_u	β_u	1

8.20 $B_{1u} \times B_{2u}$

B_{1u}	B_{2u}	B_{3g}
		ζ_g
β_u	γ_u	1

8.21 $B_{1u} \times A_{1u}$

B_{1u}	A_{1u}	B_{1g}
		β_g
β_u	α_u	1

8.22 $B_{1u} \times B_{3g}$

B_{1u}	B_{3g}	B_{2u}
		γ_u
β_u	ζ_g	1

8.23 $B_{1u} \times B_{1g}$

B_{1u}	B_{1g}	A_{1u}
		α_u
β_u	β_g	1

8.24 $B_{1u} \times B_{2g}$

B_{1u}	B_{2g}	B_{3u}
		ζ_u
β_u	γ_g	1

8.25 $B_{2u} \times A_{1g}$

B_{2u}	A_{1g}	B_{2u}
		γ_u
γ_u	α_g	1

8.26 $B_{2u} \times B_{3u}$

B_{2u}	B_{3u}	B_{1g}
		β_g
γ_u	ζ_u	1

8.27 $B_{2u} \times B_{1u}$

B_{2u}	B_{1u}	B_{3g}
		ζ_g
γ_u	β_u	1

8.28 $B_{2u} \times B_{2u}$

B_{2u}	B_{2u}	A_{1g}
		α_g
γ_u	γ_u	1

8.29 $B_{2u} \times A_{1u}$

B_{2u}	A_{1u}	B_{2g}
		γ_g
γ_u	α_u	1

8.30 $B_{2u} \times B_{3g}$

B_{2u}	B_{3g}	B_{1u}
		β_u
γ_u	ζ_g	1

8.31 $B_{2u} \times B_{1g}$

B_{2u}	B_{1g}	B_{3u} / ζ_u
γ_u	β_g	1

8.32 $B_{2u} \times B_{2g}$

B_{2u}	B_{2g}	A_{1u} / α_u
γ_u	γ_g	1

8.33 $A_{1u} \times A_{1g}$

A_{1u}	A_{1g}	A_{1u} / α_u
α_u	α_g	1

8.34 $A_{1u} \times B_{3u}$

A_{1u}	B_{3u}	B_{3g} / ζ_g
α_u	ζ_u	1

8.35 $A_{1u} \times B_{1u}$

A_{1u}	B_{1u}	B_{1g} / β_g
α_u	β_u	1

8.36 $A_{1u} \times B_{2u}$

A_{1u}	B_{2u}	B_{2g} / γ_g
α_u	γ_u	1

8.37 $A_{1u} \times A_{1u}$

A_{1u}	A_{1u}	A_{1g} / α_g
α_u	α_u	1

8.38 $A_{1u} \times B_{3g}$

A_{1u}	B_{3g}	B_{3u} / ζ_u
α_u	ζ_g	1

8.39 $A_{1u} \times B_{1g}$

A_{1u}	B_{1g}	B_{1u} / β_u
α_u	β_g	1

8.40 $A_{1u} \times B_{2g}$

A_{1u}	B_{2g}	B_{2u} / γ_u
α_u	γ_g	1

8.41 $B_{3g} \times A_{1g}$

B_{3g}	A_{1g}	B_{3g} / ζ_g
ζ_g	α_g	1

8.42 $B_{3g} \times B_{3u}$

B_{3g}	B_{3u}	A_{1u} / α_u
ζ_g	ζ_u	1

8.43 $B_{3g} \times B_{1u}$

B_{3g}	B_{1u}	B_{2u} / γ_u
ζ_g	β_u	1

8.44 $B_{3g} \times B_{2u}$

B_{3g}	B_{2u}	B_{1u} / β_u
ζ_g	γ_u	1

8.45 $B_{3g} \times A_{1u}$

B_{3g}	A_{1u}	B_{3u} / ζ_u
ζ_g	α_u	1

8.46 $B_{3g} \times B_{3g}$

B_{3g}	B_{3g}	A_{1g} / α_g
ζ_g	ζ_g	1

8.47 $B_{3g} \times B_{1g}$

B_{3g}	B_{1g}	B_{2g} / γ_g
ζ_g	β_g	1

8.48 $B_{3g} \times B_{2g}$

B_{3g}	B_{2g}	B_{1g} / β_g
ζ_g	γ_g	1

8.49 $B_{1g} \times A_{1g}$

B_{1g}	A_{1g}	B_{1g} / β_g
β_g	α_g	1

8.50 $B_{1g} \times B_{3u}$

B_{1g}	B_{3u}	B_{2u} / γ_u
β_g	ζ_u	1

8.51 $B_{1g} \times B_{1u}$

B_{1g}	B_{1u}	A_{1u} / α_u
β_g	β_u	1

8.52 $B_{1g} \times B_{2u}$

B_{1g}	B_{2u}	B_{3u} / ζ_u
β_g	γ_u	1

8.53 $B_{1g} \times A_{1u}$

B_{1g}	A_{1u}	B_{1u} / β_u
β_g	α_u	1

8.54 $B_{1g} \times B_{3g}$

B_{1g}	B_{3g}	B_{2g} / γ_g
β_g	ζ_g	1

8.55 $B_{1g} \times B_{1g}$

B_{1g}	B_{1g}	A_{1g} / α_g
β_g	β_g	1

8.56 $B_{1g} \times B_{2g}$

B_{1g}	B_{2g}	B_{3g} / ζ_g
β_g	γ_g	1

8.57 $B_{2g} \times A_{1g}$

B_{2g}	A_{1g}	B_{2g} / γ_g
γ_g	α_g	1

8.58 $B_{2g} \times B_{3u}$

B_{2g}	B_{3u}	B_{1u} / β_u
γ_g	ζ_u	1

8.59 $B_{2g} \times B_{1u}$

B_{2g}	B_{1u}	B_{3u} / ζ_u
γ_g	β_u	1

8.60 $B_{2g} \times B_{2u}$

B_{2g}	B_{2u}	A_{1u} / α_u
γ_g	γ_u	1

8.61 $B_{2g} \times A_{1u}$

B_{2g}	A_{1u}	B_{2u} / γ_u
γ_g	α_u	1

8.62 $B_{2g} \times B_{3g}$

B_{2g}	B_{3g}	B_{1g} / β_g
γ_g	ζ_g	1

8.63 $B_{2g} \times B_{1g}$

B_{2g}	B_{1g}	B_{3g} / ζ_g
γ_g	β_g	1

8.64 $B_{2g} \times B_{2g}$

B_{2g}	B_{2g}	A_{1g} / α_g
γ_g	γ_g	1

9 Group C_4

9.1 $A \times A$

A	A	A / α
α	α	1

9.2 $A \times E^1$

A	E^1	E^1 / γ
α	γ	1

9.3 $A \times E^2$

A	E^2	E^2 / ζ
α	ζ	1

9.4 $A \times B$

A	B	B / β
α	β	1

9.5 $E^1 \times A$

E^1	A	E^1 / γ
γ	α	1

9.6 $E^1 \times E^1$

E^1	E^1	B / β
γ	γ	1

9.7 $E^1 \times E^2$

E^1	E^2	A / α
γ	ζ	1

9.8 $E^1 \times B$

E^1	B	E^2 / ζ
γ	β	1

9.9 $E^2 \times A$

E^2	A	E^2 / ζ
ζ	α	1

9.10 $E^2 \times E^1$

E^2	E^1	A / α
ζ	γ	1

9.11 $E^2 \times E^2$

E^2	E^2	B / β
ζ	ζ	1

9.12 $E^2 \times B$

E^2	B	E^1 / γ
ζ	β	1

9.13 $B \times A$

B	A	B / β
β	α	1

9.14 $B \times E^1$

B	E^1	E^2 / ζ
β	γ	1

9.15 $B \times E^2$

B	E^2	E^1 / γ
β	ζ	1

9.16 $B \times B$

B	B	A / α
β	β	1

10 Group S_4

10.1 $A \times A$

A	A	A / α
α	α	1

10.2 $A \times E^1$

A	E^1	E^1 / γ
α	γ	1

10.3 $A \times E^2$

A	E^2	E^2 / ζ
α	ζ	1

10.4 $A \times B$

A	B	B / β
α	β	1

10.5 $E^1 \times A$

E^1	A	E^1 / γ
γ	α	1

10.6 $E^1 \times E^1$

E^1	E^1	B / β
γ	γ	1

10.7 $E^1 \times E^2$

E^1	E^2	A / α
γ	ζ	1

10.8 $E^1 \times B$

E^1	B	E^2 / ζ
γ	β	1

10.9 $E^2 \times A$

E^2	A	E^2 / ζ
ζ	α	1

10.10 $E^2 \times E^1$

E^2	E^1	A / α
ζ	γ	1

10.11 $E^2 \times E^2$

E^2	E^2	B / β
ζ	ζ	1

10.12 $E^2 \times B$

E^2	B	E^1 / γ
ζ	β	1

10.13 $B \times A$

B	A	B / β
β	α	1

10.14 $B \times E^1$

B	E^1	E^2 / ζ
β	γ	1

10.15 $B \times E^2$

B	E^2	E^1 / γ
β	ζ	1

10.16 $B \times B$

B	B	A / α
β	β	1

11 Group C_{4h}

11.1 $\Gamma^1 \times \Gamma^1$

Γ^1	Γ^1	Γ^1 / γ_1
γ_1	γ_1	1

11.2 $\Gamma^1 \times \Gamma^2$

Γ^1	Γ^2	Γ^2 / γ_2
γ_1	γ_2	1

11.3 $\Gamma^1 \times \Gamma^3$

Γ^1	Γ^3	Γ^3 / γ_3
γ_1	γ_3	1

11.4 $\Gamma^1 \times \Gamma^4$

Γ^1	Γ^4	Γ^4 / γ_4
γ_1	γ_4	1

11.5 $\Gamma^1 \times \Gamma^5$

Γ^1	Γ^5	Γ^5 / γ_5
γ_1	γ_5	1

11.6 $\Gamma^1 \times \Gamma^6$

Γ^1	Γ^6	Γ^6 / γ_6
γ_1	γ_6	1

11.7 $\Gamma^1 \times \Gamma^7$

Γ^1	Γ^7	Γ^7 / γ_7
γ_1	γ_7	1

11.8 $\Gamma^1 \times \Gamma^8$

Γ^1	Γ^8	Γ^8 / γ_8
γ_1	γ_8	1

11.9 $\Gamma^2 \times \Gamma^1$

Γ^2	Γ^1	Γ^2 / γ_2
γ_2	γ_1	1

11.10 $\Gamma^2 \times \Gamma^2$

Γ^2	Γ^2	Γ^8 / γ_8
γ_2	γ_2	1

11.11 $\Gamma^2 \times \Gamma^3$

Γ^2	Γ^3	Γ^1 / γ_1
γ_2	γ_3	1

11.12 $\Gamma^2 \times \Gamma^4$

Γ^2	Γ^4	Γ^7 / γ_7
γ_2	γ_4	1

11.13 $\Gamma^2 \times \Gamma^5$

Γ^2	Γ^5	Γ^6 / γ_6
γ_2	γ_5	1

11.14 $\Gamma^2 \times \Gamma^6$

Γ^2	Γ^6	Γ^4 / γ_4
γ_2	γ_6	1

11.15 $\Gamma^2 \times \Gamma^7$

Γ^2	Γ^7	Γ^5 / γ_5
γ_2	γ_7	1

11.16 $\Gamma^2 \times \Gamma^8$

Γ^2	Γ^8	Γ^3 / γ_3
γ_2	γ_8	1

11.17 $\Gamma^3 \times \Gamma^1$

Γ^3	Γ^1	Γ^3 / γ_3
γ_3	γ_1	1

11.18 $\Gamma^3 \times \Gamma^2$

Γ^3	Γ^2	Γ^1 / γ_1
γ_3	γ_2	1

11.19 $\Gamma^3 \times \Gamma^3$

Γ^3	Γ^3	Γ^8 / γ_8
γ_3	γ_3	1

11.20 $\Gamma^3 \times \Gamma^4$

Γ^3	Γ^4	Γ^6 / γ_6
γ_3	γ_4	1

11.21 $\Gamma^3 \times \Gamma^5$

Γ^3	Γ^5	Γ^7 / γ_7
γ_3	γ_5	1

11.22 $\Gamma^3 \times \Gamma^6$

Γ^3	Γ^6	Γ^5 / γ_5
γ_3	γ_6	1

11.23 $\Gamma^3 \times \Gamma^7$

Γ^3	Γ^7	Γ^4 / γ_4
γ_3	γ_7	1

11.24 $\Gamma^3 \times \Gamma^8$

Γ^3	Γ^8	Γ^2 / γ_2
γ_3	γ_8	1

11.25 $\Gamma^4 \times \Gamma^1$

Γ^4	Γ^1	Γ^4 / γ_4
γ_4	γ_1	1

11.26 $\Gamma^4 \times \Gamma^2$

Γ^4	Γ^2	Γ^7 / γ_7
γ_4	γ_2	1

11.27 $\Gamma^4 \times \Gamma^3$

Γ^4	Γ^3	Γ^6 / γ_6
γ_4	γ_3	1

11.28 $\Gamma^4 \times \Gamma^4$

Γ^4	Γ^4	Γ^1 / γ_1
γ_4	γ_4	1

11.29 $\Gamma^4 \times \Gamma^5$

Γ^4	Γ^5	Γ^8
		γ_8
γ_4	γ_5	1

11.30 $\Gamma^4 \times \Gamma^6$

Γ^4	Γ^6	Γ^3
		γ_3
γ_4	γ_6	1

11.31 $\Gamma^4 \times \Gamma^7$

Γ^4	Γ^7	Γ^2
		γ_2
γ_4	γ_7	1

11.32 $\Gamma^4 \times \Gamma^8$

Γ^4	Γ^8	Γ^5
		γ_5
γ_4	γ_8	1

11.33 $\Gamma^5 \times \Gamma^1$

Γ^5	Γ^1	Γ^5
		γ_5
γ_5	γ_1	1

11.34 $\Gamma^5 \times \Gamma^2$

Γ^5	Γ^2	Γ^6
		γ_6
γ_5	γ_2	1

11.35 $\Gamma^5 \times \Gamma^3$

Γ^5	Γ^3	Γ^7
		γ_7
γ_5	γ_3	1

11.36 $\Gamma^5 \times \Gamma^4$

Γ^5	Γ^4	Γ^8
		γ_8
γ_5	γ_4	1

11.37 $\Gamma^5 \times \Gamma^5$

Γ^5	Γ^5	Γ^1
		γ_1
γ_5	γ_5	1

11.38 $\Gamma^5 \times \Gamma^6$

Γ^5	Γ^6	Γ^2
		γ_2
γ_5	γ_6	1

11.39 $\Gamma^5 \times \Gamma^7$

Γ^5	Γ^7	Γ^3
		γ_3
γ_5	γ_7	1

11.40 $\Gamma^5 \times \Gamma^8$

Γ^5	Γ^8	Γ^4
		γ_4
γ_5	γ_8	1

11.41 $\Gamma^6 \times \Gamma^1$

Γ^6	Γ^1	Γ^6
		γ_6
γ_6	γ_1	1

11.42 $\Gamma^6 \times \Gamma^2$

Γ^6	Γ^2	Γ^4
		γ_4
γ_6	γ_2	1

11.43 $\Gamma^6 \times \Gamma^3$

Γ^6	Γ^3	Γ^5
		γ_5
γ_6	γ_3	1

11.44 $\Gamma^6 \times \Gamma^4$

Γ^6	Γ^4	Γ^3
		γ_3
γ_6	γ_4	1

11.45 $\Gamma^6 \times \Gamma^5$

Γ^6	Γ^5	Γ^2
		γ_2
γ_6	γ_5	1

11.46 $\Gamma^6 \times \Gamma^6$

Γ^6	Γ^6	Γ^8
		γ_8
γ_6	γ_6	1

11.47 $\Gamma^6 \times \Gamma^7$

Γ^6	Γ^7	Γ^1
		γ_1
γ_6	γ_7	1

11.48 $\Gamma^6 \times \Gamma^8$

Γ^6	Γ^8	Γ^7
		γ_7
γ_6	γ_8	1

11.49 $\Gamma^7 \times \Gamma^1$

Γ^7	Γ^1	Γ^7
		γ_7
γ_7	γ_1	1

11.50 $\Gamma^7 \times \Gamma^2$

Γ^7	Γ^2	Γ^5
		γ_5
γ_7	γ_2	1

11.51 $\Gamma^7 \times \Gamma^3$

Γ^7	Γ^3	Γ^4
		γ_4
γ_7	γ_3	1

11.52 $\Gamma^7 \times \Gamma^4$

Γ^7	Γ^4	Γ^2
		γ_2
γ_7	γ_4	1

11.53 $\Gamma^7 \times \Gamma^5$

Γ^7	Γ^5	Γ^3
		γ_3
γ_7	γ_5	1

11.54 $\Gamma^7 \times \Gamma^6$

Γ^7	Γ^6	Γ^1
		γ_1
γ_7	γ_6	1

11.55 $\Gamma^7 \times \Gamma^7$

Γ^7	Γ^7	Γ^8
		γ_8
γ_7	γ_7	1

11.56 $\Gamma^7 \times \Gamma^8$

Γ^7	Γ^8	Γ^6
		γ_6
γ_7	γ_8	1

11.57 $\Gamma^8 \times \Gamma^1$

Γ^8	Γ^1	Γ^8
		γ_8
γ_8	γ_1	1

11.58 $\Gamma^8 \times \Gamma^2$

Γ^8	Γ^2	Γ^3
		γ_3
γ_8	γ_2	1

11.59 $\Gamma^8 \times \Gamma^3$

Γ^8	Γ^3	Γ^2
		γ_2
γ_8	γ_3	1

11.60 $\Gamma^8 \times \Gamma^4$

Γ^8	Γ^4	Γ^5
		γ_5
γ_8	γ_4	1

11.61 $\Gamma^8 \times \Gamma^5$

Γ^8	Γ^5	Γ^4
		γ_4
γ_8	γ_5	1

11.62 $\Gamma^8 \times \Gamma^6$

Γ^8	Γ^6	Γ^7
		γ_7
γ_8	γ_6	1

11.63 $\Gamma^8 \times \Gamma^7$

Γ^8	Γ^7	Γ^6
		γ_6
γ_8	γ_7	1

11.64 $\Gamma^8 \times \Gamma^8$

Γ^8	Γ^8	Γ^1
		γ_1
γ_8	γ_8	1

12 Group D_4

12.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

12.2 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

12.3 $A_1 \times B_2$

A_1	B_2	B_2
		ζ
α	ζ	1

12.4 $A_1 \times B_1$

A_1	B_1	B_1
		γ
α	γ	1

12.5 $A_1 \times E$

A_1	E	E	
		η	μ
α	η	1	0
α	μ	0	1

12.6 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

12.7 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

12.8 $A_2 \times B_2$

A_2	B_2	B_1
		γ
β	ζ	1

12.9 $A_2 \times B_1$

A_2	B_1	B_2
		ζ
β	γ	1

12.10 $A_2 \times E$

A_2	E	E	
		η	μ
β	η	0	-1
β	μ	1	0

12.11 $B_2 \times A_1$

B_2	A_1	B_2
		ζ
ζ	α	1

12.12 $B_2 \times A_2$

B_2	A_2	B_1
		γ
ζ	β	1

12.13 $B_2 \times B_2$

B_2	B_2	A_1
		α
ζ	ζ	1

12.14 $B_2 \times B_1$

B_2	B_1	A_2
		β
ζ	γ	1

12.15 $B_2 \times E$

B_2	E	E	
		η	μ
ζ	η	0	1
ζ	μ	1	0

12.16 $B_1 \times A_1$

B_1	A_1	B_1
		γ
γ	α	1

12.17 $B_1 \times A_2$

B_1	A_2	B_2
		ζ
γ	β	1

12.18 $B_1 \times B_2$

B_1	B_2	A_2
		β
γ	ζ	1

12.19 $B_1 \times B_1$

B_1	B_1	A_1
		α
γ	γ	1

12.20 $B_1 \times E$

B_1	E	E	
		η	μ
γ	η	1	0
γ	μ	0	-1

12.21 $E \times A_1$

E	A_1	E	
		η	μ
η	α	1	0
μ	α	0	1

12.22 $E \times A_2$

E	A_2	E	
		η	μ
η	β	0	-1
μ	β	1	0

12.23 $E \times B_2$

E	B_2	E	
		η	μ
η	ζ	0	1
μ	ζ	1	0

12.24 $E \times B_1$

E	B_1	E	
		η	μ
η	γ	1	0
μ	γ	0	-1

12.25 $E \times E$

E	E	A_1	B_1	B_2	A_2
		α	γ	ζ	β
η	η	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0	0
η	μ	0	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$
μ	η	0	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$
μ	μ	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0

13 Group C_{4v}

13.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

13.2 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

13.3 $A_1 \times B_2$

A_1	B_2	B_2
		ζ
α	ζ	1

13.4 $A_1 \times B_1$

A_1	B_1	B_1
		γ
α	γ	1

13.5 $A_1 \times E$

A_1	E	E	
		η	μ
α	η	1	0
α	μ	0	1

13.6 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

13.7 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

13.8 $A_2 \times B_2$

A_2	B_2	B_1
		γ
β	ζ	1

13.9 $A_2 \times B_1$

A_2	B_1	B_2
		ζ
β	γ	1

13.10 $A_2 \times E$

A_2	E	E	
		η	μ
β	η	0	-1
β	μ	1	0

13.11 $B_2 \times A_1$

B_2	A_1	B_2
		ζ
ζ	α	1

13.12 $B_2 \times A_2$

B_2	A_2	B_1
		γ
ζ	β	1

13.13 $B_2 \times B_2$

B_2	B_2	A_1
		α
ζ	ζ	1

13.14 $B_2 \times B_1$

B_2	B_1	A_2
		β
ζ	γ	1

13.15 $B_2 \times E$

B_2	E	E	
		η	μ
ζ	η	0	1
ζ	μ	1	0

13.16 $B_1 \times A_1$

B_1	A_1	B_1
		γ
γ	α	1

13.17 $B_1 \times A_2$

B_1	A_2	B_2
		ζ
γ	β	1

13.18 $B_1 \times B_2$

B_1	B_2	A_2
		β
γ	ζ	1

13.19 $B_1 \times B_1$

B_1	B_1	A_1
		α
γ	γ	1

13.20 $B_1 \times E$

B_1	E	E	
		η	μ
γ	η	1	0
γ	μ	0	-1

13.21 $E \times A_1$

E	A_1	E	
		η	μ
η	α	1	0
μ	α	0	1

13.22 $E \times A_2$

E	A_2	E	
		η	μ
η	β	0	-1
μ	β	1	0

13.23 $E \times B_2$

E	B_2	E	
		η	μ
η	ζ	0	1
μ	ζ	1	0

13.24 $E \times B_1$

E	B_1	E	
		η	μ
η	γ	1	0
μ	γ	0	-1

13.25 $E \times E$

E	E	A_1	B_1	B_2	A_2
		α	γ	ζ	β
η	η	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0	0
η	μ	0	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$
μ	η	0	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$
μ	μ	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0

14 Group D_{2d}

14.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

14.2 $A_1 \times B_1$

A_1	B_1	B_1
		γ
α	γ	1

14.3 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

14.4 $A_1 \times B_2$

A_1	B_2	B_2
		ζ
α	ζ	1

14.5 $A_1 \times E$

A_1	E	E	
		η	μ
α	η	1	0
α	μ	0	1

14.6 $B_1 \times A_1$

B_1	A_1	B_1
		γ
γ	α	1

14.7 $B_1 \times B_1$

B_1	B_1	A_1
		α
γ	γ	1

14.8 $B_1 \times A_2$

B_1	A_2	B_2
		ζ
γ	β	1

14.9 $B_1 \times B_2$

B_1	B_2	A_2
		β
γ	ζ	1

14.10 $B_1 \times E$

B_1	E	E	
		η	μ
γ	η	0	1
γ	μ	1	0

14.11 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

14.12 $A_2 \times B_1$

A_2	B_1	B_2
		ζ
β	γ	1

14.13 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

14.14 $A_2 \times B_2$

A_2	B_2	B_1
		γ
β	ζ	1

14.15 $A_2 \times E$

A_2	E	E	
		η	μ
β	η	0	-1
β	μ	1	0

14.16 $B_2 \times A_1$

B_2	A_1	B_2
		ζ
ζ	α	1

14.17 $B_2 \times B_1$

B_2	B_1	A_2
		β
ζ	γ	1

14.18 $B_2 \times A_2$

B_2	A_2	B_1
		γ
ζ	β	1

14.19 $B_2 \times B_2$

B_2	B_2	A_1
		α
ζ	ζ	1

14.20 $B_2 \times E$

B_2	E	E	
		η	μ
ζ	η	1	0
ζ	μ	0	-1

14.21 $E \times A_1$

E	A_1	E	
		η	μ
η	α	1	0
μ	α	0	1

14.22 $E \times B_1$

E	B_1	E	
		η	μ
η	γ	0	1
μ	γ	1	0

14.23 $E \times A_2$

E	A_2	E	
		η	μ
η	β	0	-1
μ	β	1	0

14.24 $E \times B_2$

E	B_2	E	
		η	μ
η	ζ	1	0
μ	ζ	0	-1

14.25 $E \times E$

E	E	A_1	B_1	B_2	A_2
		α	γ	ζ	β
η	η	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
η	μ	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$
μ	η	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
μ	μ	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0

15 Group D_{4h}

15.1 $A_{1g} \times A_{1g}$

A_{1g}	A_{1g}	A_{1g}
		α_g
α_g	α_g	1

15.2 $A_{1g} \times A_{2g}$

A_{1g}	A_{2g}	A_{2g}
		β_g
α_g	β_g	1

15.3 $A_{1g} \times B_{2g}$

A_{1g}	B_{2g}	B_{2g}
		ζ_g
α_g	ζ_g	1

15.4 $A_{1g} \times A_{2u}$

A_{1g}	A_{2u}	A_{2u}
		β_u
α_g	β_u	1

15.5 $A_{1g} \times B_{2u}$

A_{1g}	B_{2u}	B_{2u}
		ζ_u
α_g	ζ_u	1

15.6 $A_{1g} \times B_{1u}$

A_{1g}	B_{1u}	B_{1u}
		γ_u
α_g	γ_u	1

15.7 $A_{1g} \times A_{1u}$

A_{1g}	A_{1u}	A_{1u}
		α_u
α_g	α_u	1

15.8 $A_{1g} \times B_{1g}$

A_{1g}	B_{1g}	B_{1g}
		γ_g
α_g	γ_g	1

15.9 $A_{1g} \times E_u$

A_{1g}	E_u	E_u	
		η_u	μ_u
α_g	η_u	1	0
α_g	μ_u	0	1

15.10 $A_{1g} \times E_g$

A_{1g}	E_g	E_g	
		η_g	μ_g
α_g	η_g	1	0
α_g	μ_g	0	1

15.11 $A_{2g} \times A_{1g}$

A_{2g}	A_{1g}	A_{2g}
		β_g
β_g	α_g	1

15.12 $A_{2g} \times A_{2g}$

A_{2g}	A_{2g}	A_{1g}
		α_g
β_g	β_g	1

15.13 $A_{2g} \times B_{2g}$

A_{2g}	B_{2g}	B_{1g}
		γ_g
β_g	ζ_g	1

15.14 $A_{2g} \times A_{2u}$

A_{2g}	A_{2u}	A_{1u}
		α_u
β_g	β_u	1

15.15 $A_{2g} \times B_{2u}$

A_{2g}	B_{2u}	B_{1u}
		γ_u
β_g	ζ_u	1

15.16 $A_{2g} \times B_{1u}$

A_{2g}	B_{1u}	B_{2u}
		ζ_u
β_g	γ_u	1

15.17 $A_{2g} \times A_{1u}$

A_{2g}	A_{1u}	A_{2u}
		β_u
β_g	α_u	1

15.18 $A_{2g} \times B_{1g}$

A_{2g}	B_{1g}	B_{2g}
		ζ_g
β_g	γ_g	1

15.19 $A_{2g} \times E_u$

A_{2g}	E_u	E_u	
		η_u	μ_u
β_g	η_u	0	-1
β_g	μ_u	1	0

15.20 $A_{2g} \times E_g$

A_{2g}	E_g	E_g	
		η_g	μ_g
β_g	η_g	0	-1
β_g	μ_g	1	0

15.21 $B_{2g} \times A_{1g}$

B_{2g}	A_{1g}	B_{2g}
		ζ_g
ζ_g	α_g	1

15.22 $B_{2g} \times A_{2g}$

B_{2g}	A_{2g}	B_{1g}
		γ_g
ζ_g	β_g	1

15.23 $B_{2g} \times B_{2g}$

B_{2g}	B_{2g}	A_{1g}
		α_g
ζ_g	ζ_g	1

15.24 $B_{2g} \times A_{2u}$

B_{2g}	A_{2u}	B_{1u}
		γ_u
ζ_g	β_u	1

15.25 $B_{2g} \times B_{2u}$

B_{2g}	B_{2u}	A_{1u}
		α_u
ζ_g	ζ_u	1

15.26 $B_{2g} \times B_{1u}$

B_{2g}	B_{1u}	A_{2u}
		β_u
ζ_g	γ_u	1

15.27 $B_{2g} \times A_{1u}$

B_{2g}	A_{1u}	B_{2u}
		ζ_u
ζ_g	α_u	1

15.28 $B_{2g} \times B_{1g}$

B_{2g}	B_{1g}	A_{2g}
		β_g
ζ_g	γ_g	1

15.29 $B_{2g} \times E_u$

B_{2g}	E_u	E_u	
		η_u	μ_u
ζ_g	η_u	0	1
ζ_g	μ_u	1	0

15.30 $B_{2g} \times E_g$

B_{2g}	E_g	E_g	
		η_g	μ_g
ζ_g	η_g	0	1
ζ_g	μ_g	1	0

15.31 $A_{2u} \times A_{1g}$

A_{2u}	A_{1g}	A_{2u}
		β_u
β_u	α_g	1

15.32 $A_{2u} \times A_{2g}$

A_{2u}	A_{2g}	A_{1u}
		α_u
β_u	β_g	1

15.33 $A_{2u} \times B_{2g}$

A_{2u}	B_{2g}	B_{1u}
		γ_u
β_u	ζ_g	1

15.34 $A_{2u} \times A_{2u}$

A_{2u}	A_{2u}	A_{1g}
		α_g
β_u	β_u	1

15.35 $A_{2u} \times B_{2u}$

A_{2u}	B_{2u}	B_{1g}
		γ_g
β_u	ζ_u	1

15.36 $A_{2u} \times B_{1u}$

A_{2u}	B_{1u}	B_{2g}
		ζ_g
β_u	γ_u	1

15.37 $A_{2u} \times A_{1u}$

A_{2u}	A_{1u}	A_{2g}
		β_g
β_u	α_u	1

15.38 $A_{2u} \times B_{1g}$

A_{2u}	B_{1g}	B_{2u}
		ζ_u
β_u	γ_g	1

15.39 $A_{2u} \times E_u$

A_{2u}	E_u	E_g	
		η_g	μ_g
β_u	η_u	1	0
β_u	μ_u	0	1

15.40 $A_{2u} \times E_g$

A_{2u}	E_g	E_u	
		η_u	μ_u
β_u	η_g	1	0
β_u	μ_g	0	1

15.41 $B_{2u} \times A_{1g}$

B_{2u}	A_{1g}	B_{2u}
		ζ_u
ζ_u	α_g	1

15.42 $B_{2u} \times A_{2g}$

B_{2u}	A_{2g}	B_{1u}
		γ_u
ζ_u	β_g	1

15.43 $B_{2u} \times B_{2g}$

B_{2u}	B_{2g}	A_{1u}
		α_u
ζ_u	ζ_g	1

15.44 $B_{2u} \times A_{2u}$

B_{2u}	A_{2u}	B_{1g}
		γ_g
ζ_u	β_u	1

15.45 $B_{2u} \times B_{2u}$

B_{2u}	B_{2u}	A_{1g}
		α_g
ζ_u	ζ_u	1

15.46 $B_{2u} \times B_{1u}$

B_{2u}	B_{1u}	A_{2g}
		β_g
ζ_u	γ_u	1

15.47 $B_{2u} \times A_{1u}$

B_{2u}	A_{1u}	B_{2g}
		ζ_g
ζ_u	α_u	1

15.48 $B_{2u} \times B_{1g}$

B_{2u}	B_{1g}	A_{2u}
		β_u
ζ_u	γ_g	1

15.49 $B_{2u} \times E_u$

B_{2u}	E_u	E_g	
		η_g	μ_g
ζ_u	η_u	1	0
ζ_u	μ_u	0	-1

15.50 $B_{2u} \times E_g$

B_{2u}	E_g	E_u	
		η_u	μ_u
ζ_u	η_g	1	0
ζ_u	μ_g	0	-1

15.51 $B_{1u} \times A_{1g}$

B_{1u}	A_{1g}	B_{1u}
		γ_u
γ_u	α_g	1

15.52 $B_{1u} \times A_{2g}$

B_{1u}	A_{2g}	B_{2u}
		ζ_u
γ_u	β_g	1

15.53 $B_{1u} \times B_{2g}$

B_{1u}	B_{2g}	A_{2u}
		β_u
γ_u	ζ_g	1

15.54 $B_{1u} \times A_{2u}$

B_{1u}	A_{2u}	B_{2g}
		ζ_g
γ_u	β_u	1

15.55 $B_{1u} \times B_{2u}$

B_{1u}	B_{2u}	A_{2g}
		β_g
γ_u	ζ_u	1

15.56 $B_{1u} \times B_{1u}$

B_{1u}	B_{1u}	A_{1g}
		α_g
γ_u	γ_u	1

15.57 $B_{1u} \times A_{1u}$

B_{1u}	A_{1u}	B_{1g}
		γ_g
γ_u	α_u	1

15.58 $B_{1u} \times B_{1g}$

B_{1u}	B_{1g}	A_{1u}
		α_u
γ_u	γ_g	1

15.59 $B_{1u} \times E_u$

B_{1u}	E_u	E_g	
		η_g	μ_g
γ_u	η_u	0	1
γ_u	μ_u	1	0

15.60 $B_{1u} \times E_g$

B_{1u}	E_g	E_u	
		η_u	μ_u
γ_u	η_g	0	1
γ_u	μ_g	1	0

15.61 $A_{1u} \times A_{1g}$

A_{1u}	A_{1g}	A_{1u}
		α_u
α_u	α_g	1

15.62 $A_{1u} \times A_{2g}$

A_{1u}	A_{2g}	A_{2u}
		β_u
α_u	β_g	1

15.63 $A_{1u} \times B_{2g}$

A_{1u}	B_{2g}	B_{2u}
		ζ_u
α_u	ζ_g	1

15.64 $A_{1u} \times A_{2u}$

A_{1u}	A_{2u}	A_{2g}
		β_g
α_u	β_u	1

15.65 $A_{1u} \times B_{2u}$

A_{1u}	B_{2u}	B_{2g}
		ζ_g
α_u	ζ_u	1

15.66 $A_{1u} \times B_{1u}$

A_{1u}	B_{1u}	B_{1g}
		γ_g
α_u	γ_u	1

15.67 $A_{1u} \times A_{1u}$

A_{1u}	A_{1u}	A_{1g}
		α_g
α_u	α_u	1

15.68 $A_{1u} \times B_{1g}$

A_{1u}	B_{1g}	B_{1u}
		γ_u
α_u	γ_g	1

15.69 $A_{1u} \times E_u$

A_{1u}	E_u	E_g	
		η_g	μ_g
α_u	η_u	0	-1
α_u	μ_u	1	0

15.70 $A_{1u} \times E_g$

A_{1u}	E_g	E_u η_u	E_u μ_u
α_u	η_g	0	-1
α_u	μ_g	1	0

15.71 $B_{1g} \times A_{1g}$

B_{1g}	A_{1g}	B_{1g} γ_g
γ_g	α_g	1

15.72 $B_{1g} \times A_{2g}$

B_{1g}	A_{2g}	B_{2g} ζ_g
γ_g	β_g	1

15.73 $B_{1g} \times B_{2g}$

B_{1g}	B_{2g}	A_{2g} β_g
γ_g	ζ_g	1

15.74 $B_{1g} \times A_{2u}$

B_{1g}	A_{2u}	B_{2u} ζ_u
γ_g	β_u	1

15.75 $B_{1g} \times B_{2u}$

B_{1g}	B_{2u}	A_{2u} β_u
γ_g	ζ_u	1

15.76 $B_{1g} \times B_{1u}$

B_{1g}	B_{1u}	A_{1u} α_u
γ_g	γ_u	1

15.77 $B_{1g} \times A_{1u}$

B_{1g}	A_{1u}	B_{1u} γ_u
γ_g	α_u	1

15.78 $B_{1g} \times B_{1g}$

B_{1g}	B_{1g}	A_{1g} α_g
γ_g	γ_g	1

15.79 $B_{1g} \times E_u$

B_{1g}	E_u	E_u η_u	E_u μ_u
γ_g	η_u	1	0
γ_g	μ_u	0	-1

15.80 $B_{1g} \times E_g$

B_{1g}	E_g	E_g η_g	E_g μ_g
γ_g	η_g	1	0
γ_g	μ_g	0	-1

15.81 $E_u \times A_{1g}$

E_u	A_{1g}	E_u η_u	E_u μ_u
η_u	α_g	1	0
μ_u	α_g	0	1

15.82 $E_u \times A_{2g}$

E_u	A_{2g}	E_u η_u	E_u μ_u
η_u	β_g	0	-1
μ_u	β_g	1	0

15.83 $E_u \times B_{2g}$

E_u	B_{2g}	E_u η_u	E_u μ_u
η_u	ζ_g	0	1
μ_u	ζ_g	1	0

15.84 $E_u \times A_{2u}$

E_u	A_{2u}	E_g η_g	E_g μ_g
η_u	β_u	1	0
μ_u	β_u	0	1

15.85 $E_u \times B_{2u}$

E_u	B_{2u}	E_g η_g	E_g μ_g
η_u	ζ_u	1	0
μ_u	ζ_u	0	-1

15.86 $E_u \times B_{1u}$

E_u	B_{1u}	E_g η_g	E_g μ_g
η_u	γ_u	0	1
μ_u	γ_u	1	0

15.87 $E_u \times A_{1u}$

E_u	A_{1u}	E_g η_g	E_g μ_g
η_u	α_u	0	-1
μ_u	α_u	1	0

15.88 $E_u \times B_{1g}$

E_u	B_{1g}	E_u η_u	E_u μ_u
η_u	γ_g	1	0
μ_u	γ_g	0	-1

15.89 $E_u \times E_u$

E_u	E_u	A_{2g} β_g	B_{1g} γ_g	B_{2g} ζ_g	A_{1g} α_g
η_u	η_u	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η_u	μ_u	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_u	η_u	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_u	μ_u	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

15.90 $E_u \times E_g$

E_u	E_g	B_{2u} ζ_u	B_{1u} γ_u	A_{1u} α_u	A_{2u} β_u
η_u	η_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_u	μ_g	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
μ_u	η_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_u	μ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

15.91 $E_g \times A_{1g}$

E_g	A_{1g}	E_g η_g	E_g μ_g
η_g	α_g	1	0
μ_g	α_g	0	1

15.92 $E_g \times A_{2g}$

E_g	A_{2g}	E_g η_g	E_g μ_g
η_g	β_g	0	-1
μ_g	β_g	1	0

15.93 $E_g \times B_{2g}$

E_g	B_{2g}	E_g η_g	E_g μ_g
η_g	ζ_g	0	1
μ_g	ζ_g	1	0

15.94 $E_g \times A_{2u}$

E_g	A_{2u}	E_u η_u	E_u μ_u
η_g	β_u	1	0
μ_g	β_u	0	1

15.95 $E_g \times B_{2u}$

E_g	B_{2u}	E_u η_u	E_u μ_u
η_g	ζ_u	1	0
μ_g	ζ_u	0	-1

15.96 $E_g \times B_{1u}$

E_g	B_{1u}	E_u η_u	E_u μ_u
η_g	γ_u	0	1
μ_g	γ_u	1	0

15.97 $E_g \times A_{1u}$

E_g	A_{1u}	E_u η_u	E_u μ_u
η_g	α_u	0	-1
μ_g	α_u	1	0

15.98 $E_g \times B_{1g}$

E_g	B_{1g}	E_g η_g	E_g μ_g
η_g	γ_g	1	0
μ_g	γ_g	0	-1

15.99 $E_g \times E_u$

E_g	E_u	B_{2u} ζ_u	B_{1u} γ_u	A_{1u} α_u	A_{2u} β_u
η_g	η_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_g	μ_u	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
μ_g	η_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_g	μ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

15.100 $E_g \times E_g$

E_g	E_g	A_{2g} β_g	B_{1g} γ_g	B_{2g} ζ_g	A_{1g} α_g
η_g	η_g	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η_g	μ_g	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_g	η_g	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_g	μ_g	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

16 Group C_3

16.1 $A \times A$

A	A	A α
α	α	1

16.2 $A \times E^1$

A	E^1	E^1 β
α	β	1

16.3 $A \times E^2$

A	E^2	E^2 γ
α	γ	1

16.4 $E^1 \times A$

E^1	A	E^1 β
β	α	1

16.5 $E^1 \times E^1$

E^1	E^1	E^2 γ
β	β	1

16.6 $E^1 \times E^2$

E^1	E^2	A α
β	γ	1

16.7 $E^2 \times A$

E^2	A	E^2 γ
γ	α	1

16.8 $E^2 \times E^1$

E^2	E^1	A α
γ	β	1

16.9 $E^2 \times E^2$

E^2	E^2	E^1 β
γ	γ	1

17 Group S_6

17.1 $A_g \times A_g$

A_g	A_g	A_g α_g
α_g	α_g	1

17.2 $A_g \times A_u$

A_g	A_u	A_u α_u
α_g	α_u	1

17.3 $A_g \times E_u^1$

A_g	E_u^1	E_u^1 β_u
α_g	β_u	1

17.4 $A_g \times E_u^2$

A_g	E_u^2	E_u^2 γ_u
α_g	γ_u	1

17.5 $A_g \times E_g^2$

A_g	E_g^2	E_g^2 γ_g
α_g	γ_g	1

17.6 $A_g \times E_g^1$

A_g	E_g^1	E_g^1 β_g
α_g	β_g	1

17.7 $A_u \times A_g$

A_u	A_g	A_u α_u
α_u	α_g	1

17.8 $A_u \times A_u$

A_u	A_u	A_g α_g
α_u	α_u	1

17.9 $A_u \times E_u^1$

A_u	E_u^1	E_g^2 γ_g
α_u	β_u	1

17.10 $A_u \times E_u^2$

A_u	E_u^2	E_g^1 β_g
α_u	γ_u	1

17.11 $A_u \times E_g^2$

A_u	E_g^2	E_u^1 β_u
α_u	γ_g	1

17.12 $A_u \times E_g^1$

A_u	E_g^1	E_u^2 γ_u
α_u	β_g	1

17.13 $E_u^1 \times A_g$

E_u^1	A_g	E_u^1 β_u
β_u	α_g	1

17.14 $E_u^1 \times A_u$

E_u^1	A_u	E_g^2 γ_g
β_u	α_u	1

17.15 $E_u^1 \times E_u^1$

E_u^1	E_u^1	E_g^1 β_g
β_u	β_u	1

17.16 $E_u^1 \times E_u^2$

E_u^1	E_u^2	A_g α_g
β_u	γ_u	1

17.17 $E_u^1 \times E_g^2$

E_u^1	E_g^2	E_u^2 γ_u
β_u	γ_g	1

17.18 $E_u^1 \times E_g^1$

E_u^1	E_g^1	A_u α_u
β_u	β_g	1

17.19 $E_u^2 \times A_g$

E_u^2	A_g	E_u^2 γ_u
γ_u	α_g	1

17.20 $E_u^2 \times A_u$

E_u^2	A_u	E_g^1 β_g
γ_u	α_u	1

17.21 $E_u^2 \times E_u^1$

E_u^2	E_u^1	A_g α_g
γ_u	β_u	1

17.22 $E_u^2 \times E_u^2$

E_u^2	E_u^2	E_g^2 γ_g
γ_u	γ_u	1

17.23 $E_u^2 \times E_g^2$

E_u^2	E_g^2	A_u α_u
γ_u	γ_g	1

17.24 $E_u^2 \times E_g^1$

E_u^2	E_g^1	E_u^1 β_u
γ_u	β_g	1

17.25 $E_g^2 \times A_g$

E_g^2	A_g	E_g^2 γ_g
γ_g	α_g	1

17.26 $E_g^2 \times A_u$

E_g^2	A_u	E_u^1 β_u
γ_g	α_u	1

17.27 $E_g^2 \times E_u^1$

E_g^2	E_u^1	E_u^2 γ_u
γ_g	β_u	1

17.28 $E_g^2 \times E_u^2$

E_g^2	E_u^2	A_u α_u
γ_g	γ_u	1

17.29 $E_g^2 \times E_g^2$

E_g^2	E_g^2	E_g^1 β_g
γ_g	γ_g	1

17.30 $E_g^2 \times E_g^1$

E_g^2	E_g^1	A_g α_g
γ_g	β_g	1

17.31 $E_g^1 \times A_g$

E_g^1	A_g	E_g^1 β_g
β_g	α_g	1

17.32 $E_g^1 \times A_u$

E_g^1	A_u	E_u^2 γ_u
β_g	α_u	1

17.33 $E_g^1 \times E_u^1$

E_g^1	E_u^1	A_u α_u
β_g	β_u	1

17.34 $E_g^1 \times E_u^2$

E_g^1	E_u^2	E_u^1 β_u
β_g	γ_u	1

17.35 $E_g^1 \times E_g^2$

E_g^1	E_g^2	A_g α_g
β_g	γ_g	1

17.36 $E_g^1 \times E_g^1$

E_g^1	E_g^1	E_g^2 γ_g
β_g	β_g	1

18 Group D_3

18.1 $A_1 \times A_1$

A_1	A_1	A_1 α
α	α	1

18.2 $A_1 \times A_2$

A_1	A_2	A_2 β
α	β	1

18.3 $A_1 \times E$

A_1	E	E γ	E ζ
α	γ	1	0
α	ζ	0	1

18.4 $A_2 \times A_1$

A_2	A_1	A_2 β
β	α	1

18.5 $A_2 \times A_2$

A_2	A_2	A_1 α
β	β	1

18.6 $A_2 \times E$

A_2	E	E γ	E ζ
β	γ	0	-1
β	ζ	1	0

18.7 $E \times A_1$

E	A_1	E γ	E ζ
γ	α	1	0
ζ	α	0	1

18.8 $E \times A_2$

E	A_2	E γ	E ζ
γ	β	0	-1
ζ	β	1	0

18.9 $E \times E$

E	E	A_1 α	A_2 β	E γ	E ζ
γ	γ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
γ	ζ	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ζ	γ	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ζ	ζ	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

19 Group C_{3v}

19.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

19.2 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

19.3 $A_1 \times E$

A_1	E	E	
		γ	ζ
α	γ	1	0
α	ζ	0	1

19.4 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

19.5 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

19.6 $A_2 \times E$

A_2	E	E	
		γ	ζ
β	γ	0	-1
β	ζ	1	0

19.7 $E \times A_1$

E	A_1	E	
		γ	ζ
γ	α	1	0
ζ	α	0	1

19.8 $E \times A_2$

E	A_2	E	
		γ	ζ
γ	β	0	-1
ζ	β	1	0

19.9 $E \times E$

E	E	A_1	A_2	E	
		α	β	γ	ζ
γ	γ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
γ	ζ	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ζ	γ	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ζ	ζ	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

20 Group D_{3d}

20.1 $A_{1g} \times A_{1g}$

A_{1g}	A_{1g}	A_{1g}
		α_g
α_g	α_g	1

20.2 $A_{1g} \times A_{1u}$

A_{1g}	A_{1u}	A_{1u}
		α_u
α_g	α_u	1

20.3 $A_{1g} \times A_{2u}$

A_{1g}	A_{2u}	A_{2u}
		β_u
α_g	β_u	1

20.4 $A_{1g} \times A_{2g}$

A_{1g}	A_{2g}	A_{2g}
		β_g
α_g	β_g	1

20.5 $A_{1g} \times E_g$

A_{1g}	E_g	E_g	
		γ_g	ζ_g
α_g	γ_g	1	0
α_g	ζ_g	0	1

20.6 $A_{1g} \times E_u$

A_{1g}	E_u	E_u	
		γ_u	ζ_u
α_g	γ_u	1	0
α_g	ζ_u	0	1

20.7 $A_{1u} \times A_{1g}$

A_{1u}	A_{1g}	A_{1u}
		α_u
α_u	α_g	1

20.8 $A_{1u} \times A_{1u}$

A_{1u}	A_{1u}	A_{1g}
		α_g
α_u	α_u	1

20.9 $A_{1u} \times A_{2u}$

A_{1u}	A_{2u}	A_{2g}
		β_g
α_u	β_u	1

20.10 $A_{1u} \times A_{2g}$

A_{1u}	A_{2g}	A_{2u}
		β_u
α_u	β_g	1

20.11 $A_{1u} \times E_g$

A_{1u}	E_g	E_u	
		γ_u	ζ_u
α_u	γ_g	0	-1
α_u	ζ_g	1	0

20.12 $A_{1u} \times E_u$

A_{1u}	E_u	E_g	
		γ_g	ζ_g
α_u	γ_u	0	-1
α_u	ζ_u	1	0

20.13 $A_{2u} \times A_{1g}$

A_{2u}	A_{1g}	A_{2u}
		β_u
β_u	α_g	1

20.14 $A_{2u} \times A_{1u}$

A_{2u}	A_{1u}	A_{2g}
		β_g
β_u	α_u	1

20.15 $A_{2u} \times A_{2u}$

A_{2u}	A_{2u}	A_{1g}
		α_g
β_u	β_u	1

20.16 $A_{2u} \times A_{2g}$

A_{2u}	A_{2g}	A_{1u}
		α_u
β_u	β_g	1

20.17 $A_{2u} \times E_g$

A_{2u}	E_g	E_u	
		γ_u	ζ_u
β_u	γ_g	1	0
β_u	ζ_g	0	1

20.18 $A_{2u} \times E_u$

A_{2u}	E_u	E_g	
		γ_g	ζ_g
β_u	γ_u	1	0
β_u	ζ_u	0	1

20.19 $A_{2g} \times A_{1g}$

A_{2g}	A_{1g}	A_{2g}
		β_g
β_g	α_g	1

20.20 $A_{2g} \times A_{1u}$

A_{2g}	A_{1u}	A_{2u}
		β_u
β_g	α_u	1

20.21 $A_{2g} \times A_{2u}$

A_{2g}	A_{2u}	A_{1u}
		α_u
β_g	β_u	1

20.22 $A_{2g} \times A_{2g}$

A_{2g}	A_{2g}	A_{1g}
		α_g
β_g	β_g	1

20.23 $A_{2g} \times E_g$

A_{2g}	E_g	E_g	
		γ_g	ζ_g
β_g	γ_g	0	-1
β_g	ζ_g	1	0

20.24 $A_{2g} \times E_u$

A_{2g}	E_u	E_u	
		γ_u	ζ_u
β_g	γ_u	0	-1
β_g	ζ_u	1	0

20.25 $E_g \times A_{1g}$

E_g	A_{1g}	E_g	
		γ_g	ζ_g
γ_g	α_g	1	0
ζ_g	α_g	0	1

20.26 $E_g \times A_{1u}$

E_g	A_{1u}	E_u	
		γ_u	ζ_u
γ_g	α_u	0	-1
ζ_g	α_u	1	0

20.27 $E_g \times A_{2u}$

E_g	A_{2u}	E_u	
		γ_u	ζ_u
γ_g	β_u	1	0
ζ_g	β_u	0	1

20.28 $E_g \times A_{2g}$

E_g	A_{2g}	E_g	
		γ_g	ζ_g
γ_g	β_g	0	-1
ζ_g	β_g	1	0

20.29 $E_g \times E_g$

E_g	E_g	A_{2g}	A_{1g}	E_g	
		β_g	α_g	γ_g	ζ_g
γ_g	γ_g	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
γ_g	ζ_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_g	γ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_g	ζ_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0

20.30 $E_g \times E_u$

E_g	E_u	A_{1u}	A_{2u}	E_u	
		α_u	β_u	γ_u	ζ_u
γ_g	γ_u	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
γ_g	ζ_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_g	γ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_g	ζ_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0

20.31 $E_u \times A_{1g}$

E_u	A_{1g}	E_u	
		γ_u	ζ_u
γ_u	α_g	1	0
ζ_u	α_g	0	1

20.32 $E_u \times A_{1u}$

E_u	A_{1u}	E_g	
		γ_g	ζ_g
γ_u	α_u	0	-1
ζ_u	α_u	1	0

20.33 $E_u \times A_{2u}$

E_u	A_{2u}	E_g	
		γ_g	ζ_g
γ_u	β_u	1	0
ζ_u	β_u	0	1

20.34 $E_u \times A_{2g}$

E_u	A_{2g}	E_u	
		γ_u	ζ_u
γ_u	β_g	0	-1
ζ_u	β_g	1	0

20.35 $E_u \times E_g$

E_u	E_g	A_{1u}	A_{2u}	E_u	
		α_u	β_u	γ_u	ζ_u
γ_u	γ_g	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
γ_u	ζ_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_u	γ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_u	ζ_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0

20.36 $E_u \times E_u$

E_u	E_u	A_{2g}	A_{1g}	E_g	
		β_g	α_g	γ_g	ζ_g
γ_u	γ_u	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
γ_u	ζ_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_u	γ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ζ_u	ζ_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0

21 Group C_6

21.1 $A \times A$

A	A	A
		α
α	α	1

21.2 $A \times B$

A	B	B
		β
α	β	1

21.3 $A \times E^{'1}$

A	$E^{'1}$	$E^{'1}$
		η
α	η	1

21.4 $A \times E^{'2}$

A	$E^{'2}$	$E^{'2}$
		μ
α	μ	1

21.5 $A \times E^{''2}$

A	$E^{''2}$	$E^{''2}$
		ζ
α	ζ	1

21.6 $A \times E^{''1}$

A	$E^{''1}$	$E^{''1}$
		γ
α	γ	1

21.7 $B \times A$

B	A	B
		β
β	α	1

21.8 $B \times B$

B	B	A
		α
β	β	1

21.9 $B \times E^{'1}$

B	$E^{'1}$	$E^{''2}$
		ζ
β	η	1

21.10 $B \times E^{'2}$

B	$E^{'2}$	$E^{''1}$
		γ
β	μ	1

21.11 $B \times E^{''2}$

B	$E^{''2}$	$E^{'1}$
		η
β	ζ	1

21.12 $B \times E^{''1}$

B	$E^{''1}$	$E^{'2}$
		μ
β	γ	1

21.13 $E^{'1} \times A$

$E^{'1}$	A	$E^{'1}$
		η
η	α	1

21.14 $E^{'1} \times B$

$E^{'1}$	B	$E^{''2}$
		ζ
η	β	1

21.15 $E^{'1} \times E^{'1}$

$E^{'1}$	$E^{'1}$	$E^{''1}$
		γ
η	η	1

21.16 $E^{'1} \times E^{'2}$

$E^{'1}$	$E^{'2}$	A
		α
η	μ	1

21.17 $E^{'1} \times E^{''2}$

$E^{'1}$	$E^{''2}$	$E^{'2}$
		μ
η	ζ	1

21.18 $E^{'1} \times E^{''1}$

$E^{'1}$	$E^{''1}$	B
		β
η	γ	1

21.19 $E^{'2} \times A$

$E^{'2}$	A	$E^{'2}$
		μ
μ	α	1

21.20 $E^{'2} \times B$

$E^{'2}$	B	$E^{''1}$
		γ
μ	β	1

21.21 $E^{'2} \times E^{'1}$

$E^{'2}$	$E^{'1}$	A
		α
μ	η	1

21.22 $E^{'2} \times E^{'2}$

$E^{'2}$	$E^{'2}$	$E^{''2}$
		ζ
μ	μ	1

21.23 $E^{'2} \times E^{''2}$

$E^{'2}$	$E^{''2}$	B
		β
μ	ζ	1

21.24 $E^{'2} \times E^{''1}$

$E^{'2}$	$E^{''1}$	$E^{'1}$
		η
μ	γ	1

21.25 $E^{''2} \times A$

$E^{''2}$	A	$E^{''2}$
		ζ
ζ	α	1

21.26 $E^{''2} \times B$

$E^{''2}$	B	$E^{'1}$
		η
ζ	β	1

21.27 $E^{''2} \times E^{'1}$

$E^{''2}$	$E^{'1}$	$E^{'2}$
		μ
ζ	η	1

21.28 $E^{''2} \times E^{'2}$

$E^{''2}$	$E^{'2}$	B
		β
ζ	μ	1

21.29 $E^{''2} \times E^{''2}$

$E^{''2}$	$E^{''2}$	$E^{''1}$
		γ
ζ	ζ	1

21.30 $E^{''2} \times E^{''1}$

$E^{''2}$	$E^{''1}$	A
		α
ζ	γ	1

21.31 $E^{''1} \times A$

$E^{''1}$	A	$E^{''1}$
		γ
γ	α	1

21.32 $E^{''1} \times B$

$E^{''1}$	B	$E^{'2}$
		μ
γ	β	1

21.33 $E^{''1} \times E^{'1}$

$E^{''1}$	$E^{'1}$	B
		β
γ	η	1

21.34 $E^{''1} \times E^{'2}$

$E^{''1}$	$E^{'2}$	$E^{'1}$
		η
γ	μ	1

21.35 $E^{''1} \times E^{''2}$

$E^{''1}$	$E^{''2}$	A
		α
γ	ζ	1

21.36 $E^{''1} \times E^{''1}$

$E^{''1}$	$E^{''1}$	$E^{''2}$
		ζ
γ	γ	1

22 Group C_{3h}

22.1 $A^{'} \times A^{'}$

$A^{'}$	$A^{'}$	$A^{'}$
		α
α	α	1

22.2 $A^{'} \times A^{''}$

$A^{'}$	$A^{''}$	$A^{''}$
		β
α	β	1

22.3 $A^{'} \times E^{''2}$

$A^{'}$	$E^{''2}$	$E^{''2}$
		ζ
α	ζ	1

22.4 $A^{'} \times E^{''1}$

$A^{'}$	$E^{''1}$	$E^{''1}$
		γ
α	γ	1

22.5 $A' \times E'^2$

A'	E'^2	E'^2
		μ
α	μ	1

22.6 $A' \times E'^1$

A'	E'^1	E'^1
		η
α	η	1

22.7 $A'' \times A'$

A''	A'	A''
		β
β	α	1

22.8 $A'' \times A''$

A''	A''	A'
		α
β	β	1

22.9 $A'' \times E''^2$

A''	E''^2	E'^1
		η
β	ζ	1

22.10 $A'' \times E''^1$

A''	E''^1	E'^2
		μ
β	γ	1

22.11 $A'' \times E'^2$

A''	E'^2	E''^1
		γ
β	μ	1

22.12 $A'' \times E'^1$

A''	E'^1	E''^2
		ζ
β	η	1

22.13 $E''^2 \times A'$

E''^2	A'	E''^2
		ζ
ζ	α	1

22.14 $E''^2 \times A''$

E''^2	A''	E'^1
		η
ζ	β	1

22.15 $E''^2 \times E''^2$

E''^2	E''^2	E'^2
		μ
ζ	ζ	1

22.16 $E''^2 \times E''^1$

E''^2	E''^1	A'
		α
ζ	γ	1

22.17 $E''^2 \times E'^2$

E''^2	E'^2	A''
		β
ζ	μ	1

22.18 $E''^2 \times E'^1$

E''^2	E'^1	E''^1
		γ
ζ	η	1

22.19 $E''^1 \times A'$

E''^1	A'	E''^1
		γ
γ	α	1

22.20 $E''^1 \times A''$

E''^1	A''	E'^2
		μ
γ	β	1

22.21 $E''^1 \times E''^2$

E''^1	E''^2	A'
		α
γ	ζ	1

22.22 $E''^1 \times E''^1$

E''^1	E''^1	E'^1
		η
γ	γ	1

22.23 $E''^1 \times E'^2$

E''^1	E'^2	E''^2
		ζ
γ	μ	1

22.24 $E''^1 \times E'^1$

E''^1	E'^1	A''
		β
γ	η	1

22.25 $E'^2 \times A'$

E'^2	A'	E'^2
		μ
μ	α	1

22.26 $E'^2 \times A''$

E'^2	A''	E''^1
		γ
μ	β	1

22.27 $E'^2 \times E''^2$

E'^2	E''^2	A''
		β
μ	ζ	1

22.28 $E'^2 \times E''^1$

E'^2	E''^1	E''^2
		ζ
μ	γ	1

22.29 $E'^2 \times E'^2$

E'^2	E'^2	E'^1
		η
μ	μ	1

22.30 $E'^2 \times E'^1$

E'^2	E'^1	A'
		α
μ	η	1

22.31 $E'^1 \times A'$

E'^1	A'	E'^1
		η
η	α	1

22.32 $E'^1 \times A''$

E'^1	A''	E''^2
		ζ
η	β	1

22.33 $E'^1 \times E''^2$

E'^1	E''^2	E''^1
		γ
η	ζ	1

22.34 $E'^1 \times E''^1$

E'^1	E''^1	A''
		β
η	γ	1

22.35 $E'^1 \times E'^2$

E'^1	E'^2	A'
		α
η	μ	1

22.36 $E'^1 \times E'^1$

E'^1	E'^1	E'^2
		μ
η	η	1

23 Group C_{6h}

23.1 $\Gamma^1 \times \Gamma^1$

Γ^1	Γ^1	Γ^1
		γ_4
γ_4	γ_4	1

23.2 $\Gamma^1 \times \Gamma^2$

Γ^1	Γ^2	Γ^2
		γ_5
γ_4	γ_5	1

23.3 $\Gamma^1 \times \Gamma^3$

Γ^1	Γ^3	Γ^3
		γ_6
γ_4	γ_6	1

23.4 $\Gamma^1 \times \Gamma^4$

Γ^1	Γ^4	Γ^4
		γ_7
γ_4	γ_7	1

23.5 $\Gamma^1 \times \Gamma^5$

Γ^1	Γ^5	Γ^5
		γ_8
γ_4	γ_8	1

23.6 $\Gamma^1 \times \Gamma^6$

Γ^1	Γ^6	Γ^6
		γ_9
γ_4	γ_9	1

23.7 $\Gamma^1 \times \Gamma^7$

Γ^1	Γ^7	Γ^7
		γ_{10}
γ_4	γ_{10}	1

23.8 $\Gamma^1 \times \Gamma^8$

Γ^1	Γ^8	Γ^8
		γ_{11}
γ_4	γ_{11}	1

23.9 $\Gamma^1 \times \Gamma^9$

Γ^1	Γ^9	Γ^9
		γ_{12}
γ_4	γ_{12}	1

23.10 $\Gamma^1 \times \Gamma^{10}$

Γ^1	Γ^{10}	Γ^{10}
		γ_1
γ_4	γ_1	1

23.11 $\Gamma^1 \times \Gamma^{11}$

Γ^1	Γ^{11}	Γ^{11}
		γ_2
γ_4	γ_2	1

23.12 $\Gamma^1 \times \Gamma^{12}$

Γ^1	Γ^{12}	Γ^{12}
		γ_3
γ_4	γ_3	1

23.13 $\Gamma^2 \times \Gamma^1$

Γ^2	Γ^1	Γ^2
		γ_5
γ_5	γ_4	1

23.14 $\Gamma^2 \times \Gamma^2$

Γ^2	Γ^2	Γ^1
		γ_4
γ_5	γ_5	1

23.15 $\Gamma^2 \times \Gamma^3$

Γ^2	Γ^3	Γ^{11}
		γ_2
γ_5	γ_6	1

23.16 $\Gamma^2 \times \Gamma^4$

Γ^2	Γ^4	Γ^{12}
		γ_3
γ_5	γ_7	1

23.17 $\Gamma^2 \times \Gamma^5$

Γ^2	Γ^5	Γ^8
		γ_{11}
γ_5	γ_8	1

23.18 $\Gamma^2 \times \Gamma^6$

Γ^2	Γ^6	Γ^9
		γ_{12}
γ_5	γ_9	1

23.19 $\Gamma^2 \times \Gamma^7$

Γ^2	Γ^7	Γ^{10}
		γ_1
γ_5	γ_{10}	1

23.20 $\Gamma^2 \times \Gamma^8$

Γ^2	Γ^8	Γ^5
		γ_8
γ_5	γ_{11}	1

23.21 $\Gamma^2 \times \Gamma^9$

Γ^2	Γ^9	Γ^6
		γ_9
γ_5	γ_{12}	1

23.22 $\Gamma^2 \times \Gamma^{10}$

Γ^2	Γ^{10}	Γ^7
		γ_{10}
γ_5	γ_1	1

23.23 $\Gamma^2 \times \Gamma^{11}$

Γ^2	Γ^{11}	Γ^3
		γ_6
γ_5	γ_2	1

23.24 $\Gamma^2 \times \Gamma^{12}$

Γ^2	Γ^{12}	Γ^4
		γ_7
γ_5	γ_3	1

23.25 $\Gamma^3 \times \Gamma^1$

Γ^3	Γ^1	Γ^3
		γ_6
γ_6	γ_4	1

23.26 $\Gamma^3 \times \Gamma^2$

Γ^3	Γ^2	Γ^{11}
		γ_2
γ_6	γ_5	1

23.27 $\Gamma^3 \times \Gamma^3$

Γ^3	Γ^3	Γ^{12}
		γ_3
γ_6	γ_6	1

23.28 $\Gamma^3 \times \Gamma^4$

Γ^3	Γ^4	Γ^1
		γ_4
γ_6	γ_7	1

23.29 $\Gamma^3 \times \Gamma^5$

Γ^3	Γ^5	Γ^{10}
		γ_1
γ_6	γ_8	1

23.30 $\Gamma^3 \times \Gamma^6$

Γ^3	Γ^6	Γ^8
		γ_{11}
γ_6	γ_9	1

23.31 $\Gamma^3 \times \Gamma^7$

Γ^3	Γ^7	Γ^9
		γ_{12}
γ_6	γ_{10}	1

23.32 $\Gamma^3 \times \Gamma^8$

Γ^3	Γ^8	Γ^7
		γ_{10}
γ_6	γ_{11}	1

23.33 $\Gamma^3 \times \Gamma^9$

Γ^3	Γ^9	Γ^5
		γ_8
γ_6	γ_{12}	1

23.34 $\Gamma^3 \times \Gamma^{10}$

Γ^3	Γ^{10}	Γ^6
		γ_9
γ_6	γ_1	1

23.35 $\Gamma^3 \times \Gamma^{11}$

Γ^3	Γ^{11}	Γ^4
		γ_7
γ_6	γ_2	1

23.36 $\Gamma^3 \times \Gamma^{12}$

Γ^3	Γ^{12}	Γ^2
		γ_5
γ_6	γ_3	1

23.37 $\Gamma^4 \times \Gamma^1$

Γ^4	Γ^1	Γ^4
		γ_7
γ_7	γ_4	1

23.38 $\Gamma^4 \times \Gamma^2$

Γ^4	Γ^2	Γ^{12}
		γ_3
γ_7	γ_5	1

23.39 $\Gamma^4 \times \Gamma^3$

Γ^4	Γ^3	Γ^1
		γ_4
γ_7	γ_6	1

23.40 $\Gamma^4 \times \Gamma^4$

Γ^4	Γ^4	Γ^{11}
		γ_2
γ_7	γ_7	1

23.41 $\Gamma^4 \times \Gamma^5$

Γ^4	Γ^5	Γ^9
		γ_{12}
γ_7	γ_8	1

23.42 $\Gamma^4 \times \Gamma^6$

Γ^4	Γ^6	Γ^{10}
		γ_1
γ_7	γ_9	1

23.43 $\Gamma^4 \times \Gamma^7$

Γ^4	Γ^7	Γ^8
		γ_{11}
γ_7	γ_{10}	1

23.44 $\Gamma^4 \times \Gamma^8$

Γ^4	Γ^8	Γ^6
		γ_9
γ_7	γ_{11}	1

23.45 $\Gamma^4 \times \Gamma^9$

Γ^4	Γ^9	Γ^7
		γ_{10}
γ_7	γ_{12}	1

23.46 $\Gamma^4 \times \Gamma^{10}$

Γ^4	Γ^{10}	Γ^5
		γ_8
γ_7	γ_1	1

23.47 $\Gamma^4 \times \Gamma^{11}$

Γ^4	Γ^{11}	Γ^2
		γ_5
γ_7	γ_2	1

23.48 $\Gamma^4 \times \Gamma^{12}$

Γ^4	Γ^{12}	Γ^3
		γ_6
γ_7	γ_3	1

23.49 $\Gamma^5 \times \Gamma^1$

Γ^5	Γ^1	Γ^5
		γ_8
γ_8	γ_4	1

23.50 $\Gamma^5 \times \Gamma^2$

Γ^5	Γ^2	Γ^8
		γ_{11}
γ_8	γ_5	1

23.51 $\Gamma^5 \times \Gamma^3$

Γ^5	Γ^3	Γ^{10}
		γ_1
γ_8	γ_6	1

23.52 $\Gamma^5 \times \Gamma^4$

Γ^5	Γ^4	Γ^9
		γ_{12}
γ_8	γ_7	1

23.53 $\Gamma^5 \times \Gamma^5$

Γ^5	Γ^5	Γ^1
		γ_4
γ_8	γ_8	1

23.54 $\Gamma^5 \times \Gamma^6$

Γ^5	Γ^6	Γ^{12}
		γ_3
γ_8	γ_9	1

23.55 $\Gamma^5 \times \Gamma^7$

Γ^5	Γ^7	Γ^{11}
		γ_2
γ_8	γ_{10}	1

23.56 $\Gamma^5 \times \Gamma^8$

Γ^5	Γ^8	Γ^2
		γ_5
γ_8	γ_{11}	1

23.57 $\Gamma^5 \times \Gamma^9$

Γ^5	Γ^9	Γ^4
		γ_7
γ_8	γ_{12}	1

23.58 $\Gamma^5 \times \Gamma^{10}$

Γ^5	Γ^{10}	Γ^3
		γ_6
γ_8	γ_1	1

23.59 $\Gamma^5 \times \Gamma^{11}$

Γ^5	Γ^{11}	Γ^7
		γ_{10}
γ_8	γ_2	1

23.60 $\Gamma^5 \times \Gamma^{12}$

Γ^5	Γ^{12}	Γ^6
		γ_9
γ_8	γ_3	1

23.61 $\Gamma^6 \times \Gamma^1$

Γ^6	Γ^1	Γ^6
		γ_9
γ_9	γ_4	1

23.62 $\Gamma^6 \times \Gamma^2$

Γ^6	Γ^2	Γ^9
		γ_{12}
γ_9	γ_5	1

23.63 $\Gamma^6 \times \Gamma^3$

Γ^6	Γ^3	Γ^8
		γ_{11}
γ_9	γ_6	1

23.64 $\Gamma^6 \times \Gamma^4$

Γ^6	Γ^4	Γ^{10}
		γ_1
γ_9	γ_7	1

23.65 $\Gamma^6 \times \Gamma^5$

Γ^6	Γ^5	Γ^{12}
		γ_3
γ_9	γ_8	1

23.66 $\Gamma^6 \times \Gamma^6$

Γ^6	Γ^6	Γ^{11}
		γ_2
γ_9	γ_9	1

23.67 $\Gamma^6 \times \Gamma^7$

Γ^6	Γ^7	Γ^1
		γ_4
γ_9	γ_{10}	1

23.68 $\Gamma^6 \times \Gamma^8$

Γ^6	Γ^8	Γ^4
		γ_7
γ_9	γ_{11}	1

23.69 $\Gamma^6 \times \Gamma^9$

Γ^6	Γ^9	Γ^3
		γ_6
γ_9	γ_{12}	1

23.70 $\Gamma^6 \times \Gamma^{10}$

Γ^6	Γ^{10}	Γ^2
		γ_5
γ_9	γ_1	1

23.71 $\Gamma^6 \times \Gamma^{11}$

Γ^6	Γ^{11}	Γ^5
		γ_8
γ_9	γ_2	1

23.72 $\Gamma^6 \times \Gamma^{12}$

Γ^6	Γ^{12}	Γ^7
		γ_{10}
γ_9	γ_3	1

23.73 $\Gamma^7 \times \Gamma^1$

Γ^7	Γ^1	Γ^7
		γ_{10}
γ_{10}	γ_4	1

23.74 $\Gamma^7 \times \Gamma^2$

Γ^7	Γ^2	Γ^{10}
		γ_1
γ_{10}	γ_5	1

23.75 $\Gamma^7 \times \Gamma^3$

Γ^7	Γ^3	Γ^9
		γ_{12}
γ_{10}	γ_6	1

23.76 $\Gamma^7 \times \Gamma^4$

Γ^7	Γ^4	Γ^8
		γ_{11}
γ_{10}	γ_7	1

23.77 $\Gamma^7 \times \Gamma^5$

Γ^7	Γ^5	Γ^{11}
		γ_2
γ_{10}	γ_8	1

23.78 $\Gamma^7 \times \Gamma^6$

Γ^7	Γ^6	Γ^1
		γ_4
γ_{10}	γ_9	1

23.79 $\Gamma^7 \times \Gamma^7$

Γ^7	Γ^7	Γ^{12}
		γ_3
γ_{10}	γ_{10}	1

23.80 $\Gamma^7 \times \Gamma^8$

Γ^7	Γ^8	Γ^3
		γ_6
γ_{10}	γ_{11}	1

23.81 $\Gamma^7 \times \Gamma^9$

Γ^7	Γ^9	Γ^2
		γ_5
γ_{10}	γ_{12}	1

23.82 $\Gamma^7 \times \Gamma^{10}$

Γ^7	Γ^{10}	Γ^4
		γ_7
γ_{10}	γ_1	1

23.83 $\Gamma^7 \times \Gamma^{11}$

Γ^7	Γ^{11}	Γ^6
		γ_9
γ_{10}	γ_2	1

23.84 $\Gamma^7 \times \Gamma^{12}$

Γ^7	Γ^{12}	Γ^5
		γ_8
γ_{10}	γ_3	1

23.85 $\Gamma^8 \times \Gamma^1$

Γ^8	Γ^1	Γ^8
		γ_{11}
γ_{11}	γ_4	1

23.86 $\Gamma^8 \times \Gamma^2$

Γ^8	Γ^2	Γ^5
		γ_8
γ_{11}	γ_5	1

23.87 $\Gamma^8 \times \Gamma^3$

Γ^8	Γ^3	Γ^7
		γ_{10}
γ_{11}	γ_6	1

23.88 $\Gamma^8 \times \Gamma^4$

Γ^8	Γ^4	Γ^6
		γ_9
γ_{11}	γ_7	1

23.89 $\Gamma^8 \times \Gamma^5$

Γ^8	Γ^5	Γ^2
		γ_5
γ_{11}	γ_8	1

23.90 $\Gamma^8 \times \Gamma^6$

Γ^8	Γ^6	Γ^4
		γ_7
γ_{11}	γ_9	1

23.91 $\Gamma^8 \times \Gamma^7$

Γ^8	Γ^7	Γ^3
		γ_6
γ_{11}	γ_{10}	1

23.92 $\Gamma^8 \times \Gamma^8$

Γ^8	Γ^8	Γ^1
		γ_4
γ_{11}	γ_{11}	1

23.93 $\Gamma^8 \times \Gamma^9$

Γ^8	Γ^9	Γ^{12}
		γ_3
γ_{11}	γ_{12}	1

23.94 $\Gamma^8 \times \Gamma^{10}$

Γ^8	Γ^{10}	Γ^{11}
		γ_2
γ_{11}	γ_1	1

23.95 $\Gamma^8 \times \Gamma^{11}$

Γ^8	Γ^{11}	Γ^{10}
		γ_1
γ_{11}	γ_2	1

23.96 $\Gamma^8 \times \Gamma^{12}$

Γ^8	Γ^{12}	Γ^9
		γ_{12}
γ_{11}	γ_3	1

23.97 $\Gamma^9 \times \Gamma^1$

Γ^9	Γ^1	Γ^9
		γ_{12}
γ_{12}	γ_4	1

23.98 $\Gamma^9 \times \Gamma^2$

Γ^9	Γ^2	Γ^6
		γ_9
γ_{12}	γ_5	1

23.99 $\Gamma^9 \times \Gamma^3$

Γ^9	Γ^3	Γ^5
		γ_8
γ_{12}	γ_6	1

23.100 $\Gamma^9 \times \Gamma^4$

Γ^9	Γ^4	Γ^7
		γ_{10}
γ_{12}	γ_7	1

23.101 $\Gamma^9 \times \Gamma^5$

Γ^9	Γ^5	Γ^4
		γ_7
γ_{12}	γ_8	1

23.102 $\Gamma^9 \times \Gamma^6$

Γ^9	Γ^6	Γ^3
		γ_6
γ_{12}	γ_9	1

23.103 $\Gamma^9 \times \Gamma^7$

Γ^9	Γ^7	Γ^2
		γ_5
γ_{12}	γ_{10}	1

23.104 $\Gamma^9 \times \Gamma^8$

Γ^9	Γ^8	Γ^{12}
		γ_3
γ_{12}	γ_{11}	1

23.105 $\Gamma^9 \times \Gamma^9$

Γ^9	Γ^9	Γ^{11}
		γ_2
γ_{12}	γ_{12}	1

23.106 $\Gamma^9 \times \Gamma^{10}$

Γ^9	Γ^{10}	Γ^1
		γ_4
γ_{12}	γ_1	1

23.107 $\Gamma^9 \times \Gamma^{11}$

Γ^9	Γ^{11}	Γ^8
		γ_{11}
γ_{12}	γ_2	1

23.108 $\Gamma^9 \times \Gamma^{12}$

Γ^9	Γ^{12}	Γ^{10}
		γ_1
γ_{12}	γ_3	1

23.109 $\Gamma^{10} \times \Gamma^1$

Γ^{10}	Γ^1	Γ^{10}
		γ_1
γ_1	γ_4	1

23.110 $\Gamma^{10} \times \Gamma^2$

Γ^{10}	Γ^2	Γ^7
		γ_{10}
γ_1	γ_5	1

23.111 $\Gamma^{10} \times \Gamma^3$

Γ^{10}	Γ^3	Γ^6
		γ_9
γ_1	γ_6	1

23.112 $\Gamma^{10} \times \Gamma^4$

Γ^{10}	Γ^4	Γ^5
		γ_8
γ_1	γ_7	1

23.113 $\Gamma^{10} \times \Gamma^5$

Γ^{10}	Γ^5	Γ^3
		γ_6
γ_1	γ_8	1

23.114 $\Gamma^{10} \times \Gamma^6$

Γ^{10}	Γ^6	Γ^2
		γ_5
γ_1	γ_9	1

23.115 $\Gamma^{10} \times \Gamma^7$

Γ^{10}	Γ^7	Γ^4
		γ_7
γ_1	γ_{10}	1

23.116 $\Gamma^{10} \times \Gamma^8$

Γ^{10}	Γ^8	Γ^{11}
		γ_2
γ_1	γ_{11}	1

23.117 $\Gamma^{10} \times \Gamma^9$

Γ^{10}	Γ^9	Γ^1
		γ_4
γ_1	γ_{12}	1

23.118 $\Gamma^{10} \times \Gamma^{10}$

Γ^{10}	Γ^{10}	Γ^{12}
		γ_3
γ_1	γ_1	1

23.119 $\Gamma^{10} \times \Gamma^{11}$

Γ^{10}	Γ^{11}	Γ^9
		γ_{12}
γ_1	γ_2	1

23.120 $\Gamma^{10} \times \Gamma^{12}$

Γ^{10}	Γ^{12}	Γ^8
		γ_{11}
γ_1	γ_3	1

23.121 $\Gamma^{11} \times \Gamma^1$

Γ^{11}	Γ^1	Γ^{11}
		γ_2
γ_2	γ_4	1

23.122 $\Gamma^{11} \times \Gamma^2$

Γ^{11}	Γ^2	Γ^3
		γ_6
γ_2	γ_5	1

23.123 $\Gamma^{11} \times \Gamma^3$

Γ^{11}	Γ^3	Γ^4
		γ_7
γ_2	γ_6	1

23.124 $\Gamma^{11} \times \Gamma^4$

Γ^{11}	Γ^4	Γ^2
		γ_5
γ_2	γ_7	1

23.125 $\Gamma^{11} \times \Gamma^5$

Γ^{11}	Γ^5	Γ^7
		γ_{10}
γ_2	γ_8	1

23.126 $\Gamma^{11} \times \Gamma^6$

Γ^{11}	Γ^6	Γ^5
		γ_8
γ_2	γ_9	1

23.127 $\Gamma^{11} \times \Gamma^7$

Γ^{11}	Γ^7	Γ^6
		γ_9
γ_2	γ_{10}	1

23.128 $\Gamma^{11} \times \Gamma^8$

Γ^{11}	Γ^8	Γ^{10}
		γ_1
γ_2	γ_{11}	1

23.129 $\Gamma^{11} \times \Gamma^9$

Γ^{11}	Γ^9	Γ^8
		γ_{11}
γ_2	γ_{12}	1

23.130 $\Gamma^{11} \times \Gamma^{10}$

Γ^{11}	Γ^{10}	Γ^9
		γ_{12}
γ_2	γ_1	1

23.131 $\Gamma^{11} \times \Gamma^{11}$

Γ^{11}	Γ^{11}	Γ^{12}
		γ_3
γ_2	γ_2	1

23.132 $\Gamma^{11} \times \Gamma^{12}$

Γ^{11}	Γ^{12}	Γ^1
		γ_4
γ_2	γ_3	1

23.133 $\Gamma^{12} \times \Gamma^1$

Γ^{12}	Γ^1	Γ^{12}
		γ_3
γ_3	γ_4	1

23.134 $\Gamma^{12} \times \Gamma^2$

Γ^{12}	Γ^2	Γ^4
		γ_7
γ_3	γ_5	1

23.135 $\Gamma^{12} \times \Gamma^3$

Γ^{12}	Γ^3	Γ^2
		γ_5
γ_3	γ_6	1

23.136 $\Gamma^{12} \times \Gamma^4$

Γ^{12}	Γ^4	Γ^3
		γ_6
γ_3	γ_7	1

23.137 $\Gamma^{12} \times \Gamma^5$

Γ^{12}	Γ^5	Γ^6
		γ_9
γ_3	γ_8	1

23.138 $\Gamma^{12} \times \Gamma^6$

Γ^{12}	Γ^6	Γ^7
		γ_{10}
γ_3	γ_9	1

23.139 $\Gamma^{12} \times \Gamma^7$

Γ^{12}	Γ^7	Γ^5
		γ_8
γ_3	γ_{10}	1

23.140 $\Gamma^{12} \times \Gamma^8$

Γ^{12}	Γ^8	Γ^9
		γ_{12}
γ_3	γ_{11}	1

23.141 $\Gamma^{12} \times \Gamma^9$

Γ^{12}	Γ^9	Γ^{10}
		γ_1
γ_3	γ_{12}	1

23.142 $\Gamma^{12} \times \Gamma^{10}$

Γ^{12}	Γ^{10}	Γ^8
		γ_{11}
γ_3	γ_1	1

23.143 $\Gamma^{12} \times \Gamma^{11}$

Γ^{12}	Γ^{11}	Γ^1
		γ_4
γ_3	γ_2	1

23.144 $\Gamma^{12} \times \Gamma^{12}$

Γ^{12}	Γ^{12}	Γ^{11}
		γ_2
γ_3	γ_3	1

24 Group D_6

24.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

24.2 $A_1 \times B_1$

A_1	B_1	B_1
		γ
α	γ	1

24.3 $A_1 \times B_2$

A_1	B_2	B_2
		ζ
α	ζ	1

24.4 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

24.5 $A_1 \times E_2$

A_1	E_2	E_2	
		ν	ξ
α	ν	1	0
α	ξ	0	1

24.6 $A_1 \times E_1$

A_1	E_1	E_1	
		η	μ
α	η	1	0
α	μ	0	1

24.7 $B_1 \times A_1$

B_1	A_1	B_1
		γ
γ	α	1

24.8 $B_1 \times B_1$

B_1	B_1	A_1
		α
γ	γ	1

24.9 $B_1 \times B_2$

B_1	B_2	A_2
		β
γ	ζ	1

24.10 $B_1 \times A_2$

B_1	A_2	B_2
		ζ
γ	β	1

24.11 $B_1 \times E_2$

B_1	E_2	E_1	
		η	μ
γ	ν	1	0
γ	ξ	0	-1

24.12 $B_1 \times E_1$

B_1	E_1	E_2	
		ν	ξ
γ	η	1	0
γ	μ	0	-1

24.13 $B_2 \times A_1$

B_2	A_1	B_2
		ζ
ζ	α	1

24.14 $B_2 \times B_1$

B_2	B_1	A_2
		β
ζ	γ	1

24.15 $B_2 \times B_2$

B_2	B_2	A_1
		α
ζ	ζ	1

24.16 $B_2 \times A_2$

B_2	A_2	B_1
		γ
ζ	β	1

24.17 $B_2 \times E_2$

B_2	E_2	E_1	
		η	μ
ζ	ν	0	1
ζ	ξ	1	0

24.18 $B_2 \times E_1$

B_2	E_1	E_2	
		ν	ξ
ζ	η	0	1
ζ	μ	1	0

24.19 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

24.20 $A_2 \times B_1$

A_2	B_1	B_2
		ζ
β	γ	1

24.21 $A_2 \times B_2$

A_2	B_2	B_1
		γ
β	ζ	1

24.22 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

24.23 $A_2 \times E_2$

A_2	E_2	E_2	
		ν	ξ
β	ν	0	-1
β	ξ	1	0

24.24 $A_2 \times E_1$

A_2	E_1	E_1	
		η	μ
β	η	0	-1
β	μ	1	0

24.25 $E_2 \times A_1$

E_2	A_1	E_2	
		ν	ξ
ν	α	1	0
ξ	α	0	1

24.26 $E_2 \times B_1$

E_2	B_1	E_1	
		η	μ
ν	γ	1	0
ξ	γ	0	-1

24.27 $E_2 \times B_2$

E_2	B_2	E_1	
		η	μ
ν	ζ	0	1
ξ	ζ	1	0

24.28 $E_2 \times A_2$

E_2	A_2	E_2	
		ν	ξ
ν	β	0	-1
ξ	β	1	0

24.29 $E_2 \times E_2$

E_2	E_2	A_1	A_2	E_2	
		α	β	ν	ξ
ν	ν	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ν	ξ	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ	ν	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ	ξ	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

24.30 $E_2 \times E_1$

E_2	E_1	B_1	B_2	E_1	
		γ	ζ	η	μ
ν	η	$-\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ν	μ	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
ξ	η	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ	μ	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

24.31 $E_1 \times A_1$

E_1	A_1	E_1	
		η	μ
η	α	1	0
μ	α	0	1

24.32 $E_1 \times B_1$

E_1	B_1	E_2	
		ν	ξ
η	γ	1	0
μ	γ	0	-1

24.33 $E_1 \times B_2$

E_1	B_2	E_2	
		ν	ξ
η	ζ	0	1
μ	ζ	1	0

24.34 $E_1 \times A_2$

E_1	A_2	E_1	
		η	μ
η	β	0	-1
μ	β	1	0

24.35 $E_1 \times E_2$

E_1	E_2	B_1	B_2	E_1	
		γ	ζ	η	μ
η	ν	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η	ξ	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
μ	ν	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ	ξ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

24.36 $E_1 \times E_1$

E_1	E_1	A_1	A_2	E_2	
		α	β	ν	ξ
η	η	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η	μ	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ	η	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ	μ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

25 Group C_{6v}

25.1 $A_1 \times A_1$

A_1	A_1	A_1
		α
α	α	1

25.2 $A_1 \times B_2$

A_1	B_2	B_2
		ζ
α	ζ	1

25.3 $A_1 \times B_1$

A_1	B_1	B_1
		γ
α	γ	1

25.4 $A_1 \times A_2$

A_1	A_2	A_2
		β
α	β	1

25.5 $A_1 \times E_2$

A_1	E_2	E_2	
		ν	ξ
α	ν	1	0
α	ξ	0	1

25.6 $A_1 \times E_1$

A_1	E_1	E_1	
		η	μ
α	η	1	0
α	μ	0	1

25.7 $B_2 \times A_1$

B_2	A_1	B_2
		ζ
ζ	α	1

25.8 $B_2 \times B_2$

B_2	B_2	A_1
		α
ζ	ζ	1

25.9 $B_2 \times B_1$

B_2	B_1	A_2
		β
ζ	γ	1

25.10 $B_2 \times A_2$

B_2	A_2	B_1
		γ
ζ	β	1

25.11 $B_2 \times E_2$

B_2	E_2	E_1	
		η	μ
ζ	ν	1	0
ζ	ξ	0	-1

25.12 $B_2 \times E_1$

B_2	E_1	E_2	
		ν	ξ
ζ	η	1	0
ζ	μ	0	-1

25.13 $B_1 \times A_1$

B_1	A_1	B_1
		γ
γ	α	1

25.14 $B_1 \times B_2$

B_1	B_2	A_2
		β
γ	ζ	1

25.15 $B_1 \times B_1$

B_1	B_1	A_1
		α
γ	γ	1

25.16 $B_1 \times A_2$

B_1	A_2	B_2
		ζ
γ	β	1

25.17 $B_1 \times E_2$

B_1	E_2	E_1	
		η	μ
γ	ν	0	1
γ	ξ	1	0

25.18 $B_1 \times E_1$

B_1	E_1	E_2	
		ν	ξ
γ	η	0	1
γ	μ	1	0

25.19 $A_2 \times A_1$

A_2	A_1	A_2
		β
β	α	1

25.20 $A_2 \times B_2$

A_2	B_2	B_1
		γ
β	ζ	1

25.21 $A_2 \times B_1$

A_2	B_1	B_2
		ζ
β	γ	1

25.22 $A_2 \times A_2$

A_2	A_2	A_1
		α
β	β	1

25.23 $A_2 \times E_2$

A_2	E_2	E_2	
		ν	ξ
β	ν	0	-1
β	ξ	1	0

25.24 $A_2 \times E_1$

A_2	E_1	E_1	
		η	μ
β	η	0	-1
β	μ	1	0

25.25 $E_2 \times A_1$

E_2	A_1	E_2	
		ν	ξ
ν	α	1	0
ξ	α	0	1

25.26 $E_2 \times B_2$

E_2	B_2	E_1	
		η	μ
ν	ζ	1	0
ξ	ζ	0	-1

25.27 $E_2 \times B_1$

E_2	B_1	E_1	
		η	μ
ν	γ	0	1
ξ	γ	1	0

25.28 $E_2 \times A_2$

E_2	A_2	E_2	
		ν	ξ
ν	β	0	-1
ξ	β	1	0

25.29 $E_2 \times E_2$

E_2	E_2	A_1	A_2	E_2	
		α	β	ν	ξ
ν	ν	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ν	ξ	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ	ν	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ	ξ	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

25.30 $E_2 \times E_1$

E_2	E_1	B_1	B_2	E_1	
		γ	ζ	η	μ
ν	η	0	$-\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$
ν	μ	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
ξ	η	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ	μ	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

25.31 $E_1 \times A_1$

E_1	A_1	E_1	
		η	μ
η	α	1	0
μ	α	0	1

25.32 $E_1 \times B_2$

E_1	B_2	E_2	
		ν	ξ
η	ζ	1	0
μ	ζ	0	-1

25.33 $E_1 \times B_1$

E_1	B_1	E_2	
		ν	ξ
η	γ	0	1
μ	γ	1	0

25.34 $E_1 \times A_2$

E_1	A_2	E_1	
		η	μ
η	β	0	-1
μ	β	1	0

25.35 $E_1 \times E_2$

E_1	E_2	B_1	B_2	E_1	
		γ	ζ	η	μ
η	ν	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η	ξ	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
μ	ν	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ	ξ	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

25.36 $E_1 \times E_1$

E_1	E_1	A_1	A_2	E_2	
		α	β	ν	ξ
η	η	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η	μ	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ	η	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ	μ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

26 Group D_{3h}

26.1 $A_1^{'} \times A_1^{'}$

$A_1^{'}$	$A_1^{'}$	$A_1^{'}$
		α
α	α	1

26.2 $A_1^{'} \times A_2^{''}$

$A_1^{'}$	$A_2^{''}$	$A_2^{''}$
		ζ
α	ζ	1

26.3 $A_1^{'} \times A_1^{''}$

$A_1^{'}$	$A_1^{''}$	$A_1^{''}$
		γ
α	γ	1

26.4 $A_1^{'} \times A_2^{'}$

$A_1^{'}$	$A_2^{'}$	$A_2^{'}$
		β
α	β	1

26.5 $A_1^{'} \times E^{'}$

$A_1^{'}$	$E^{'}$	$E^{'}$	
		η	μ
α	η	1	0
α	μ	0	1

26.6 $A_1^{'} \times E^{''}$

$A_1^{'}$	$E^{''}$	$E^{''}$	
		ν	ξ
α	ν	1	0
α	ξ	0	1

26.7 $A_2^{''} \times A_1^{'}$

$A_2^{''}$	$A_1^{'}$	$A_2^{''}$
		ζ
ζ	α	1

26.8 $A_2^{''} \times A_2^{''}$

$A_2^{''}$	$A_2^{''}$	$A_1^{'}$
		α
ζ	ζ	1

26.9 $A_2^{''} \times A_1^{''}$

$A_2^{''}$	$A_1^{''}$	$A_2^{'}$
		β
ζ	γ	1

26.10 $A_2^{''} \times A_2^{'}$

$A_2^{''}$	$A_2^{'}$	$A_1^{''}$
		γ
ζ	β	1

26.11 $A_2^{''} \times E^{'}$

$A_2^{''}$	$E^{'}$	$E^{''}$	
		ν	ξ
ζ	η	1	0
ζ	μ	0	1

26.12 $A_2^{''} \times E^{''}$

$A_2^{''}$	$E^{''}$	$E^{'}$	
		η	μ
ζ	ν	1	0
ζ	ξ	0	1

26.13 $A_1^{''} \times A_1^{'}$

$A_1^{''}$	$A_1^{'}$	$A_1^{''}$
		γ
γ	α	1

26.14 $A_1^{''} \times A_2^{''}$

$A_1^{''}$	$A_2^{''}$	$A_2^{'}$
		β
γ	ζ	1

26.15 $A_1^{''} \times A_1^{''}$

$A_1^{''}$	$A_1^{''}$	$A_1^{'}$
		α
γ	γ	1

26.16 $A_1^{''} \times A_2^{'}$

$A_1^{''}$	$A_2^{'}$	$A_2^{''}$
		ζ
γ	β	1

26.17 $A_1^{''} \times E^{'}$

$A_1^{''}$	$E^{'}$	$E^{''}$	
		ν	ξ
γ	η	0	-1
γ	μ	1	0

26.18 $A_1^{''} \times E^{''}$

$A_1^{''}$	$E^{''}$	$E^{'}$	
		η	μ
γ	ν	0	-1
γ	ξ	1	0

26.19 $A_2^{'} \times A_1^{'}$

$A_2^{'}$	$A_1^{'}$	$A_2^{'}$
		β
β	α	1

26.20 $A_2^{'} \times A_2^{''}$

$A_2^{'}$	$A_2^{''}$	$A_1^{''}$
		γ
β	ζ	1

26.21 $A_2^{'} \times A_1^{''}$

$A_2^{'}$	$A_1^{''}$	$A_2^{''}$
		ζ
β	γ	1

26.22 $A_2^{'} \times A_2^{'}$

$A_2^{'}$	$A_2^{'}$	$A_1^{'}$
		α
β	β	1

26.23 $A_2^{'} \times E^{'}$

$A_2^{'}$	$E^{'}$	$E^{'}$	
		η	μ
β	η	0	-1
β	μ	1	0

26.24 $A_2' \times E''$

A_2'	E''	E'' ν	ξ
β	ν	0	-1
β	ξ	1	0

26.25 $E' \times A_1'$

E'	A_1'	E' η	μ
η	α	1	0
μ	α	0	1

26.26 $E' \times A_2''$

E'	A_2''	E'' ν	ξ
η	ζ	1	0
μ	ζ	0	1

26.27 $E' \times A_1''$

E'	A_1''	E'' ν	ξ
η	γ	0	-1
μ	γ	1	0

26.28 $E' \times A_2'$

E'	A_2'	E' η	μ
η	β	0	-1
μ	β	1	0

26.29 $E' \times E'$

E'	E'	A_2' β	A_1' α	E' η	μ
η	η	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η	μ	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ	η	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ	μ	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

26.30 $E' \times E''$

E'	E''	A_1'' γ	A_2'' ζ	E'' ν	ξ
η	ν	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η	ξ	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ	ν	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ	ξ	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

26.31 $E'' \times A_1'$

E''	A_1'	E'' ν	ξ
ν	α	1	0
ξ	α	0	1

26.32 $E'' \times A_2''$

E''	A_2''	E' η	μ
ν	ζ	1	0
ξ	ζ	0	1

26.33 $E'' \times A_1''$

E''	A_1''	E' η	μ
ν	γ	0	-1
ξ	γ	1	0

26.34 $E'' \times A_2'$

E''	A_2'	E'' ν	ξ
ν	β	0	-1
ξ	β	1	0

26.35 $E'' \times E'$

E''	E'	A_1'' γ	A_2'' ζ	E'' ν	ξ
ν	η	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
ν	μ	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ	η	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ	μ	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

26.36 $E'' \times E''$

E''	E''	A_2' β	A_1' α	E' η	μ
ν	ν	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
ν	ξ	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ	ν	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ	ξ	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

27 Group D_{6h}

27.1 $A_{1g} \times A_{1g}$

A_{1g}	A_{1g}	A_{1g} α_g
α_g	α_g	1

27.2 $A_{1g} \times A_{2u}$

A_{1g}	A_{2u}	A_{2u} β_u
α_g	β_u	1

27.3 $A_{1g} \times A_{1u}$

A_{1g}	A_{1u}	A_{1u} α_u
α_g	α_u	1

27.4 $A_{1g} \times B_{1g}$

A_{1g}	B_{1g}	B_{1g} γ_g
α_g	γ_g	1

27.5 $A_{1g} \times B_{2g}$

A_{1g}	B_{2g}	B_{2g} ζ_g
α_g	ζ_g	1

27.6 $A_{1g} \times B_{1u}$

A_{1g}	B_{1u}	B_{1u} γ_u
α_g	γ_u	1

27.7 $A_{1g} \times B_{2u}$

A_{1g}	B_{2u}	B_{2u} ζ_u
α_g	ζ_u	1

27.8 $A_{1g} \times A_{2g}$

A_{1g}	A_{2g}	A_{2g} β_g
α_g	β_g	1

27.9 $A_{1g} \times E_{2g}$

A_{1g}	E_{2g}	E_{2g} ν_g	ξ_g
α_g	ν_g	1	0
α_g	ξ_g	0	1

27.10 $A_{1g} \times E_{1u}$

A_{1g}	E_{1u}	E_{1u} η_u	μ_u
α_g	η_u	1	0
α_g	μ_u	0	1

27.11 $A_{1g} \times E_{1g}$

A_{1g}	E_{1g}	E_{1g} η_g	μ_g
α_g	η_g	1	0
α_g	μ_g	0	1

27.12 $A_{1g} \times E_{2u}$

A_{1g}	E_{2u}	E_{2u} ν_u	ξ_u
α_g	ν_u	1	0
α_g	ξ_u	0	1

27.13 $A_{2u} \times A_{1g}$

A_{2u}	A_{1g}	A_{2u} β_u
β_u	α_g	1

27.14 $A_{2u} \times A_{2u}$

A_{2u}	A_{2u}	A_{1g} α_g
β_u	β_u	1

27.15 $A_{2u} \times A_{1u}$

A_{2u}	A_{1u}	A_{2g} β_g
β_u	α_u	1

27.16 $A_{2u} \times B_{1g}$

A_{2u}	B_{1g}	B_{2u} ζ_u
β_u	γ_g	1

27.17 $A_{2u} \times B_{2g}$

A_{2u}	B_{2g}	B_{1u} γ_u
β_u	ζ_g	1

27.18 $A_{2u} \times B_{1u}$

A_{2u}	B_{1u}	B_{2g} ζ_g
β_u	γ_u	1

27.19 $A_{2u} \times B_{2u}$

A_{2u}	B_{2u}	B_{1g} γ_g
β_u	ζ_u	1

27.20 $A_{2u} \times A_{2g}$

A_{2u}	A_{2g}	A_{1u} α_u
β_u	β_g	1

27.21 $A_{2u} \times E_{2g}$

A_{2u}	E_{2g}	E_{2u} ν_u	ξ_u
β_u	ν_g	1	0
β_u	ξ_g	0	1

27.22 $A_{2u} \times E_{1u}$

A_{2u}	E_{1u}	E_{1g} η_g	μ_g
β_u	η_u	1	0
β_u	μ_u	0	1

27.23 $A_{2u} \times E_{1g}$

A_{2u}	E_{1g}	E_{1u} η_u	μ_u
β_u	η_g	1	0
β_u	μ_g	0	1

27.24 $A_{2u} \times E_{2u}$

A_{2u}	E_{2u}	E_{2g} ν_g	ξ_g
β_u	ν_u	1	0
β_u	ξ_u	0	1

27.25 $A_{1u} \times A_{1g}$

A_{1u}	A_{1g}	A_{1u} α_u
α_u	α_g	1

27.26 $A_{1u} \times A_{2u}$

A_{1u}	A_{2u}	A_{2g} β_g
α_u	β_u	1

27.27 $A_{1u} \times A_{1u}$

A_{1u}	A_{1u}	A_{1g} α_g
α_u	α_u	1

27.28 $A_{1u} \times B_{1g}$

A_{1u}	B_{1g}	B_{1u} γ_u
α_u	γ_g	1

27.29 $A_{1u} \times B_{2g}$

A_{1u}	B_{2g}	B_{2u} ζ_u
α_u	ζ_g	1

27.30 $A_{1u} \times B_{1u}$

A_{1u}	B_{1u}	B_{1g} γ_g
α_u	γ_u	1

27.31 $A_{1u} \times B_{2u}$

A_{1u}	B_{2u}	B_{2g} ζ_g
α_u	ζ_u	1

27.32 $A_{1u} \times A_{2g}$

A_{1u}	A_{2g}	A_{2u} β_u
α_u	β_g	1

27.33 $A_{1u} \times E_{2g}$

A_{1u}	E_{2g}	E_{2u} ν_u	ξ_u
α_u	ν_g	0	-1
α_u	ξ_g	1	0

27.34 $A_{1u} \times E_{1u}$

A_{1u}	E_{1u}	E_{1g} η_g	μ_g
α_u	η_u	0	-1
α_u	μ_u	1	0

27.35 $A_{1u} \times E_{1g}$

A_{1u}	E_{1g}	E_{1u} η_u	μ_u
α_u	η_g	0	-1
α_u	μ_g	1	0

27.36 $A_{1u} \times E_{2u}$

A_{1u}	E_{2u}	E_{2g} ν_g	ξ_g
α_u	ν_u	0	-1
α_u	ξ_u	1	0

27.37 $B_{1g} \times A_{1g}$

B_{1g}	A_{1g}	B_{1g} γ_g
γ_g	α_g	1

27.38 $B_{1g} \times A_{2u}$

B_{1g}	A_{2u}	B_{2u} ζ_u
γ_g	β_u	1

27.39 $B_{1g} \times A_{1u}$

B_{1g}	A_{1u}	B_{1u} γ_u
γ_g	α_u	1

27.40 $B_{1g} \times B_{1g}$

B_{1g}	B_{1g}	A_{1g} α_g
γ_g	γ_g	1

27.41 $B_{1g} \times B_{2g}$

B_{1g}	B_{2g}	A_{2g} β_g
γ_g	ζ_g	1

27.42 $B_{1g} \times B_{1u}$

B_{1g}	B_{1u}	A_{1u} α_u
γ_g	γ_u	1

27.43 $B_{1g} \times B_{2u}$

B_{1g}	B_{2u}	A_{2u} β_u
γ_g	ζ_u	1

27.44 $B_{1g} \times A_{2g}$

B_{1g}	A_{2g}	B_{2g} ζ_g
γ_g	β_g	1

27.45 $B_{1g} \times E_{2g}$

B_{1g}	E_{2g}	E_{1g} η_g	μ_g
γ_g	ν_g	0	1
γ_g	ξ_g	1	0

27.46 $B_{1g} \times E_{1u}$

B_{1g}	E_{1u}	E_{2u} ν_u	ξ_u
γ_g	η_u	0	1
γ_g	μ_u	1	0

27.47 $B_{1g} \times E_{1g}$

B_{1g}	E_{1g}	E_{2g} ν_g	ξ_g
γ_g	η_g	0	1
γ_g	μ_g	1	0

27.48 $B_{1g} \times E_{2u}$

B_{1g}	E_{2u}	E_{1u} η_u	μ_u
γ_g	ν_u	0	1
γ_g	ξ_u	1	0

27.49 $B_{2g} \times A_{1g}$

B_{2g}	A_{1g}	B_{2g} ζ_g
ζ_g	α_g	1

27.50 $B_{2g} \times A_{2u}$

B_{2g}	A_{2u}	B_{1u} γ_u
ζ_g	β_u	1

27.51 $B_{2g} \times A_{1u}$

B_{2g}	A_{1u}	B_{2u} ζ_u
ζ_g	α_u	1

27.52 $B_{2g} \times B_{1g}$

B_{2g}	B_{1g}	A_{2g} β_g
ζ_g	γ_g	1

27.53 $B_{2g} \times B_{2g}$

B_{2g}	B_{2g}	A_{1g} α_g
ζ_g	ζ_g	1

27.54 $B_{2g} \times B_{1u}$

B_{2g}	B_{1u}	A_{2u} β_u
ζ_g	γ_u	1

27.55 $B_{2g} \times B_{2u}$

B_{2g}	B_{2u}	A_{1u} α_u
ζ_g	ζ_u	1

27.56 $B_{2g} \times A_{2g}$

B_{2g}	A_{2g}	B_{1g} γ_g
ζ_g	β_g	1

27.57 $B_{2g} \times E_{2g}$

B_{2g}	E_{2g}	E_{1g} η_g	μ_g
ζ_g	ν_g	1	0
ζ_g	ξ_g	0	-1

27.58 $B_{2g} \times E_{1u}$

B_{2g}	E_{1u}	E_{2u} ν_u	ξ_u
ζ_g	η_u	1	0
ζ_g	μ_u	0	-1

27.59 $B_{2g} \times E_{1g}$

B_{2g}	E_{1g}	E_{2g} ν_g	ξ_g
ζ_g	η_g	1	0
ζ_g	μ_g	0	-1

27.60 $B_{2g} \times E_{2u}$

B_{2g}	E_{2u}	E_{1u} η_u	μ_u
ζ_g	ν_u	1	0
ζ_g	ξ_u	0	-1

27.61 $B_{1u} \times A_{1g}$

B_{1u}	A_{1g}	B_{1u} γ_u
γ_u	α_g	1

27.62 $B_{1u} \times A_{2u}$

B_{1u}	A_{2u}	B_{2g} ζ_g
γ_u	β_u	1

27.63 $B_{1u} \times A_{1u}$

B_{1u}	A_{1u}	B_{1g} γ_g
γ_u	α_u	1

27.64 $B_{1u} \times B_{1g}$

B_{1u}	B_{1g}	A_{1u} α_u
γ_u	γ_g	1

27.65 $B_{1u} \times B_{2g}$

B_{1u}	B_{2g}	A_{2u} β_u
γ_u	ζ_g	1

27.66 $B_{1u} \times B_{1u}$

B_{1u}	B_{1u}	A_{1g} α_g
γ_u	γ_u	1

27.67 $B_{1u} \times B_{2u}$

B_{1u}	B_{2u}	A_{2g} β_g
γ_u	ζ_u	1

27.68 $B_{1u} \times A_{2g}$

B_{1u}	A_{2g}	B_{2u} ζ_u
γ_u	β_g	1

27.69 $B_{1u} \times E_{2g}$

B_{1u}	E_{2g}	E_{1u} η_u	μ_u
γ_u	ν_g	1	0
γ_u	ξ_g	0	-1

27.70 $B_{1u} \times E_{1u}$

B_{1u}	E_{1u}	E_{2g} ν_g	ξ_g
γ_u	η_u	1	0
γ_u	μ_u	0	-1

27.71 $B_{1u} \times E_{1g}$

B_{1u}	E_{1g}	E_{2u} ν_u	ξ_u
γ_u	η_g	1	0
γ_u	μ_g	0	-1

27.72 $B_{1u} \times E_{2u}$

B_{1u}	E_{2u}	E_{1g} η_g	μ_g
γ_u	ν_u	1	0
γ_u	ξ_u	0	-1

27.73 $B_{2u} \times A_{1g}$

B_{2u}	A_{1g}	B_{2u} ζ_u
ζ_u	α_g	1

27.74 $B_{2u} \times A_{2u}$

B_{2u}	A_{2u}	B_{1g} γ_g
ζ_u	β_u	1

27.75 $B_{2u} \times A_{1u}$

B_{2u}	A_{1u}	B_{2g} ζ_g
ζ_u	α_u	1

27.76 $B_{2u} \times B_{1g}$

B_{2u}	B_{1g}	A_{2u} β_u
ζ_u	γ_g	1

27.77 $B_{2u} \times B_{2g}$

B_{2u}	B_{2g}	A_{1u} α_u
ζ_u	ζ_g	1

27.78 $B_{2u} \times B_{1u}$

B_{2u}	B_{1u}	A_{2g} β_g
ζ_u	γ_u	1

27.79 $B_{2u} \times B_{2u}$

B_{2u}	B_{2u}	A_{1g} α_g
ζ_u	ζ_u	1

27.80 $B_{2u} \times A_{2g}$

B_{2u}	A_{2g}	B_{1u} γ_u
ζ_u	β_g	1

27.81 $B_{2u} \times E_{2g}$

B_{2u}	E_{2g}	E_{1u} η_u	E_{1u} μ_u
ζ_u	ν_g	0	1
ζ_u	ξ_g	1	0

27.82 $B_{2u} \times E_{1u}$

B_{2u}	E_{1u}	E_{2g} ν_g	E_{2g} ξ_g
ζ_u	η_u	0	1
ζ_u	μ_u	1	0

27.83 $B_{2u} \times E_{1g}$

B_{2u}	E_{1g}	E_{2u} ν_u	E_{2u} ξ_u
ζ_u	η_g	0	1
ζ_u	μ_g	1	0

27.84 $B_{2u} \times E_{2u}$

B_{2u}	E_{2u}	E_{1g} η_g	E_{1g} μ_g
ζ_u	ν_u	0	1
ζ_u	ξ_u	1	0

27.85 $A_{2g} \times A_{1g}$

A_{2g}	A_{1g}	A_{2g} β_g
β_g	α_g	1

27.86 $A_{2g} \times A_{2u}$

A_{2g}	A_{2u}	A_{1u} α_u
β_g	β_u	1

27.87 $A_{2g} \times A_{1u}$

A_{2g}	A_{1u}	A_{2u} β_u
β_g	α_u	1

27.88 $A_{2g} \times B_{1g}$

A_{2g}	B_{1g}	B_{2g} ζ_g
β_g	γ_g	1

27.89 $A_{2g} \times B_{2g}$

A_{2g}	B_{2g}	B_{1g} γ_g
β_g	ζ_g	1

27.90 $A_{2g} \times B_{1u}$

A_{2g}	B_{1u}	B_{2u} ζ_u
β_g	γ_u	1

27.91 $A_{2g} \times B_{2u}$

A_{2g}	B_{2u}	B_{1u} γ_u
β_g	ζ_u	1

27.92 $A_{2g} \times A_{2g}$

A_{2g}	A_{2g}	A_{1g} α_g
β_g	β_g	1

27.93 $A_{2g} \times E_{2g}$

A_{2g}	E_{2g}	E_{2g} ν_g	E_{2g} ξ_g
β_g	ν_g	0	-1
β_g	ξ_g	1	0

27.94 $A_{2g} \times E_{1u}$

A_{2g}	E_{1u}	E_{1u} η_u	E_{1u} μ_u
β_g	η_u	0	-1
β_g	μ_u	1	0

27.95 $A_{2g} \times E_{1g}$

A_{2g}	E_{1g}	E_{1g} η_g	E_{1g} μ_g
β_g	η_g	0	-1
β_g	μ_g	1	0

27.96 $A_{2g} \times E_{2u}$

A_{2g}	E_{2u}	E_{2u} ν_u	E_{2u} ξ_u
β_g	ν_u	0	-1
β_g	ξ_u	1	0

27.97 $E_{2g} \times A_{1g}$

E_{2g}	A_{1g}	E_{2g} ν_g	E_{2g} ξ_g
ν_g	α_g	1	0
ξ_g	α_g	0	1

27.98 $E_{2g} \times A_{2u}$

E_{2g}	A_{2u}	E_{2u} ν_u	E_{2u} ξ_u
ν_g	β_u	1	0
ξ_g	β_u	0	1

27.99 $E_{2g} \times A_{1u}$

E_{2g}	A_{1u}	E_{2u} ν_u	E_{2u} ξ_u
ν_g	α_u	0	-1
ξ_g	α_u	1	0

27.100 $E_{2g} \times B_{1g}$

E_{2g}	B_{1g}	E_{1g} η_g	E_{1g} μ_g
ν_g	γ_g	0	1
ξ_g	γ_g	1	0

27.101 $E_{2g} \times B_{2g}$

E_{2g}	B_{2g}	E_{1g} η_g	E_{1g} μ_g
ν_g	ζ_g	1	0
ξ_g	ζ_g	0	-1

27.102 $E_{2g} \times B_{1u}$

E_{2g}	B_{1u}	E_{1u} η_u	E_{1u} μ_u
ν_g	γ_u	1	0
ξ_g	γ_u	0	-1

27.103 $E_{2g} \times B_{2u}$

E_{2g}	B_{2u}	E_{1u} η_u	E_{1u} μ_u
ν_g	ζ_u	0	1
ξ_g	ζ_u	1	0

27.104 $E_{2g} \times A_{2g}$

E_{2g}	A_{2g}	E_{2g} ν_g	E_{2g} ξ_g
ν_g	β_g	0	-1
ξ_g	β_g	1	0

27.105 $E_{2g} \times E_{2g}$

E_{2g}	E_{2g}	A_{2g} β_g	A_{1g} α_g	E_{2g} ν_g	E_{2g} ξ_g
ν_g	ν_g	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
ν_g	ξ_g	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ_g	ν_g	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ_g	ξ_g	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

27.106 $E_{2g} \times E_{1u}$

E_{2g}	E_{1u}	B_{2u} ζ_u	B_{1u} γ_u	E_{1u} η_u	E_{1u} μ_u
ν_g	η_u	0	$-\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$
ν_g	μ_u	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
ξ_g	η_u	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ_g	μ_u	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

27.107 $E_{2g} \times E_{1g}$

E_{2g}	E_{1g}	B_{2g} ζ_g	B_{1g} γ_g	E_{1g} η_g	E_{1g} μ_g
ν_g	η_g	$-\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ν_g	μ_g	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
ξ_g	η_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ_g	μ_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

27.108 $E_{2g} \times E_{2u}$

E_{2g}	E_{2u}	A_{2u} β_u	A_{1u} α_u	E_{2u} ν_u	E_{2u} ξ_u
ν_g	ν_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ν_g	ξ_u	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ_g	ν_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ_g	ξ_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

27.109 $E_{1u} \times A_{1g}$

E_{1u}	A_{1g}	E_{1u} η_u	E_{1u} μ_u
η_u	α_g	1	0
μ_u	α_g	0	1

27.110 $E_{1u} \times A_{2u}$

E_{1u}	A_{2u}	E_{1g} η_g	E_{1g} μ_g
η_u	β_u	1	0
μ_u	β_u	0	1

27.111 $E_{1u} \times A_{1u}$

E_{1u}	A_{1u}	E_{1g} η_g	E_{1g} μ_g
η_u	α_u	0	-1
μ_u	α_u	1	0

27.112 $E_{1u} \times B_{1g}$

E_{1u}	B_{1g}	E_{2u} ν_u	E_{2u} ξ_u
η_u	γ_g	0	1
μ_u	γ_g	1	0

27.113 $E_{1u} \times B_{2g}$

E_{1u}	B_{2g}	E_{2u} ν_u	E_{2u} ξ_u
η_u	ζ_g	1	0
μ_u	ζ_g	0	-1

27.114 $E_{1u} \times B_{1u}$

E_{1u}	B_{1u}	E_{2g} ν_g	E_{2g} ξ_g
η_u	γ_u	1	0
μ_u	γ_u	0	-1

27.115 $E_{1u} \times B_{2u}$

E_{1u}	B_{2u}	E_{2g} ν_g	E_{2g} ξ_g
η_u	ζ_u	0	1
μ_u	ζ_u	1	0

27.116 $E_{1u} \times A_{2g}$

E_{1u}	A_{2g}	E_{1u} η_u	E_{1u} μ_u
η_u	β_g	0	-1
μ_u	β_g	1	0

27.117 $E_{1u} \times E_{2g}$

E_{1u}	E_{2g}	B_{2u} ζ_u	B_{1u} γ_u	E_{1u} η_u	E_{1u} μ_u
η_u	ν_g	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η_u	ξ_g	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
μ_u	ν_g	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_u	ξ_g	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

27.118 $E_{1u} \times E_{1u}$

E_{1u}	E_{1u}	A_{2g} β_g	A_{1g} α_g	E_{2g} ν_g	E_{2g} ξ_g
η_u	η_u	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$
η_u	μ_u	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_u	η_u	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_u	μ_u	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

27.119 $E_{1u} \times E_{1g}$

E_{1u}	E_{1g}	A_{2u} β_u	A_{1u} α_u	E_{2u} ν_u	E_{2u} ξ_u
η_u	η_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η_u	μ_g	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_u	η_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_u	μ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

27.120 $E_{1u} \times E_{2u}$

E_{1u}	E_{2u}	B_{2g} ζ_g	B_{1g} γ_g	E_{1g} η_g	E_{1g} μ_g
η_u	ν_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_u	ξ_u	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
μ_u	ν_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_u	ξ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

27.121 $E_{1g} \times A_{1g}$

E_{1g}	A_{1g}	E_{1g} η_g	E_{1g} μ_g
η_g	α_g	1	0
μ_g	α_g	0	1

27.122 $E_{1g} \times A_{2u}$

E_{1g}	A_{2u}	E_{1u} η_u	E_{1u} μ_u
η_g	β_u	1	0
μ_g	β_u	0	1

27.123 $E_{1g} \times A_{1u}$

E_{1g}	A_{1u}	E_{1u} η_u	E_{1u} μ_u
η_g	α_u	0	-1
μ_g	α_u	1	0

27.124 $E_{1g} \times B_{1g}$

E_{1g}	B_{1g}	E_{2g} ν_g	E_{2g} ξ_g
η_g	γ_g	0	1
μ_g	γ_g	1	0

27.125 $E_{1g} \times B_{2g}$

E_{1g}	B_{2g}	E_{2g} ν_g	E_{2g} ξ_g
η_g	ζ_g	1	0
μ_g	ζ_g	0	-1

27.126 $E_{1g} \times B_{1u}$

E_{1g}	B_{1u}	E_{2u} ν_u	E_{2u} ξ_u
η_g	γ_u	1	0
μ_g	γ_u	0	-1

27.127 $E_{1g} \times B_{2u}$

E_{1g}	B_{2u}	E_{2u} ν_u	E_{2u} ξ_u
η_g	ζ_u	0	1
μ_g	ζ_u	1	0

27.128 $E_{1g} \times A_{2g}$

E_{1g}	A_{2g}	E_{1g} η_g	E_{1g} μ_g
η_g	β_g	0	-1
μ_g	β_g	1	0

27.129 $E_{1g} \times E_{2g}$

E_{1g}	E_{2g}	B_{2g} ζ_g	B_{1g} γ_g	E_{1g} η_g	E_{1g} μ_g
η_g	ν_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_g	ξ_g	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
μ_g	ν_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_g	ξ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

27.130 $E_{1g} \times E_{1u}$

E_{1g}	E_{1u}	A_{2u} β_u	A_{1u} α_u	E_{2u} ν_u	E_{2u} ξ_u
η_g	η_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η_g	μ_u	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_g	η_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
μ_g	μ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$

27.131 $E_{1g} \times E_{1g}$

E_{1g}	E_{1g}	A_{2g} β_g	A_{1g} α_g	E_{2g} ν_g	E_{2g} ξ_g
η_g	η_g	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$
η_g	μ_g	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_g	η_g	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_g	μ_g	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

27.132 $E_{1g} \times E_{2u}$

E_{1g}	E_{2u}	B_{2u} ζ_u	B_{1u} γ_u	E_{1u} η_u	E_{1u} μ_u
η_g	ν_u	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
η_g	ξ_u	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
μ_g	ν_u	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ_g	ξ_u	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$

27.133 $E_{2u} \times A_{1g}$

E_{2u}	A_{1g}	E_{2u} ν_u	E_{2u} ξ_u
ν_u	α_g	1	0
ξ_u	α_g	0	1

27.134 $E_{2u} \times A_{2u}$

E_{2u}	A_{2u}	E_{2g} ν_g	E_{2g} ξ_g
ν_u	β_u	1	0
ξ_u	β_u	0	1

27.135 $E_{2u} \times A_{1u}$

E_{2u}	A_{1u}	E_{2g} ν_g	E_{2g} ξ_g
ν_u	α_u	0	-1
ξ_u	α_u	1	0

27.136 $E_{2u} \times B_{1g}$

E_{2u}	B_{1g}	E_{1u} η_u	E_{1u} μ_u
ν_u	γ_g	0	1
ξ_u	γ_g	1	0

27.137 $E_{2u} \times B_{2g}$

E_{2u}	B_{2g}	E_{1u} η_u	E_{1u} μ_u
ν_u	ζ_g	1	0
ξ_u	ζ_g	0	-1

27.138 $E_{2u} \times B_{1u}$

E_{2u}	B_{1u}	E_{1g} η_g	E_{1g} μ_g
ν_u	γ_u	1	0
ξ_u	γ_u	0	-1

27.139 $E_{2u} \times B_{2u}$

E_{2u}	B_{2u}	E_{1g} η_g	E_{1g} μ_g
ν_u	ζ_u	0	1
ξ_u	ζ_u	1	0

27.140 $E_{2u} \times A_{2g}$

E_{2u}	A_{2g}	E_{2u} ν_u	E_{2u} ξ_u
ν_u	β_g	0	-1
ξ_u	β_g	1	0

27.141 $E_{2u} \times E_{2g}$

E_{2u}	E_{2g}	A_{2u} β_u	A_{1u} α_u	E_{2u} ν_u	E_{2u} ξ_u
ν_u	ν_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ν_u	ξ_g	0	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ_u	ν_g	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ_u	ξ_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

27.142 $E_{2u} \times E_{1u}$

E_{2u}	E_{1u}	B_{2g} ζ_g	B_{1g} γ_g	E_{1g} η_g	E_{1g} μ_g
ν_u	η_u	$-\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ν_u	μ_u	0	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
ξ_u	η_u	0	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0
ξ_u	μ_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$

27.143 $E_{2u} \times E_{1g}$

E_{2u}	E_{1g}	B_{2u} ζ_u	B_{1u} γ_u	E_{1u} η_u	E_{1u} μ_u
ν_u	η_g	0	$-\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$
ν_u	μ_g	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
ξ_u	η_g	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ_u	μ_g	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

27.144 $E_{2u} \times E_{2u}$

E_{2u}	E_{2u}	A_{2g} β_g	A_{1g} α_g	E_{2g} ν_g	E_{2g} ξ_g
ν_u	ν_u	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
ν_u	ξ_u	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ_u	ν_u	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ_u	ξ_u	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$

28 Group T

28.1 $A \times A$

A	A	A α
α	α	1

28.2 $A \times E^1$

A	E^1	E^1 β
α	β	1

28.3 $A \times E^2$

A	E^2	E^2 γ
α	γ	1

28.4 $A \times T$

A	T	T ζ	T η	T μ
α	ζ	1	0	0
α	η	0	1	0
α	μ	0	0	1

28.5 $E^1 \times A$

E^1	A	E^1 β
β	α	1

28.6 $E^1 \times E^1$

E^1	E^1	E^2
		γ
β	β	1

28.7 $E^1 \times E^2$

E^1	E^2	A
		α
β	γ	1

28.8 $E^1 \times T$

E^1	T	T		
		ζ	η	μ
β	ζ	1	0	0
β	η	0	$\frac{i(\sqrt{3}+i)}{2}$	0
β	μ	0	0	$-\frac{i(\sqrt{3}-i)}{2}$

28.9 $E^2 \times A$

E^2	A	E^2
		γ
γ	α	1

28.10 $E^2 \times E^1$

E^2	E^1	A
		α
γ	β	1

28.11 $E^2 \times E^2$

E^2	E^2	E^1
		β
γ	γ	1

28.12 $E^2 \times T$

E^2	T	T		
		ζ	η	μ
γ	ζ	1	0	0
γ	η	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
γ	μ	0	0	$\frac{i(\sqrt{3}+i)}{2}$

28.13 $T \times A$

T	A	T		
		ζ	η	μ
ζ	α	1	0	0
η	α	0	1	0
μ	α	0	0	1

28.14 $T \times E^1$

T	E^1	T		
		ζ	η	μ
ζ	β	1	0	0
η	β	0	$\frac{i(\sqrt{3}+i)}{2}$	0
μ	β	0	0	$-\frac{i(\sqrt{3}-i)}{2}$

28.15 $T \times E^2$

T	E^2	T		
		ζ	η	μ
ζ	γ	1	0	0
η	γ	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
μ	γ	0	0	$\frac{i(\sqrt{3}+i)}{2}$

28.16 $T \times T$

T	T	E^1	E^2	A	T		
		β	γ	α	ζ	η	μ
ζ	ζ	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0
ζ	η	0	0	0	0	0	0
ζ	μ	0	0	0	0	1	0
η	ζ	0	0	0	0	0	1
η	η	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0
η	μ	0	0	0	0	0	0
μ	ζ	0	0	0	0	0	0
μ	η	0	0	0	1	0	0
μ	μ	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	0	0	0

29 Group T_h

29.1 $A_g \times A_g$

A_g	A_g	A_g
		α_g
α_g	α_g	1

29.2 $A_g \times A_u$

A_g	A_u	A_u
		α_u
α_g	α_u	1

29.3 $A_g \times E_u^1$

A_g	E_u^1	E_u^1
		β_u
α_g	β_u	1

29.4 $A_g \times E_u^2$

A_g	E_u^2	E_u^2
		γ_u
α_g	γ_u	1

29.5 $A_g \times E_g^2$

A_g	E_g^2	E_g^2
		γ_g
α_g	γ_g	1

29.6 $A_g \times E_g^1$

A_g	E_g^1	E_g^1
		β_g
α_g	β_g	1

29.7 $A_g \times T_g$

A_g	T_g	T_g		
		ζ_g	η_g	μ_g
α_g	ζ_g	1	0	0
α_g	η_g	0	1	0
α_g	μ_g	0	0	1

29.8 $A_g \times T_u$

A_g	T_u	T_u		
		ζ_u	η_u	μ_u
α_g	ζ_u	1	0	0
α_g	η_u	0	1	0
α_g	μ_u	0	0	1

29.9 $A_u \times A_g$

A_u	A_g	A_u
		α_u
α_u	α_g	1

29.10 $A_u \times A_u$

A_u	A_u	A_g
		α_g
α_u	α_u	1

29.11 $A_u \times E_u^1$

A_u	E_u^1	E_g^1
		β_g
α_u	β_u	1

29.12 $A_u \times E_u^2$

A_u	E_u^2	E_g^2
		γ_g
α_u	γ_u	1

29.13 $A_u \times E_g^2$

A_u	E_g^2	E_u^2
		γ_u
α_u	γ_g	1

29.14 $A_u \times E_g^1$

A_u	E_g^1	E_u^1
		β_u
α_u	β_g	1

29.15 $A_u \times T_g$

A_u	T_g	T_u		
		ζ_u	η_u	μ_u
α_u	ζ_g	0	1	0
α_u	η_g	0	0	1
α_u	μ_g	1	0	0

29.16 $A_u \times T_u$

A_u	T_u	T_g		
		ζ_g	η_g	μ_g
α_u	ζ_u	0	0	1
α_u	η_u	1	0	0
α_u	μ_u	0	1	0

29.17 $E_u^1 \times A_g$

E_u^1	A_g	E_u^1
		β_u
β_u	α_g	1

29.18 $E_u^1 \times A_u$

E_u^1	A_u	E_g^1
		β_g
β_u	α_u	1

29.19 $E_u^1 \times E_u^1$

E_u^1	E_u^1	E_g^2
		γ_g
β_u	β_u	1

29.20 $E_u^1 \times E_u^2$

E_u^1	E_u^2	A_g
		α_g
β_u	γ_u	1

29.21 $E_u^1 \times E_g^2$

E_u^1	E_g^2	A_u
		α_u
β_u	γ_g	1

29.22 $E_u^1 \times E_g^1$

E_u^1	E_g^1	E_u^2
		γ_u
β_u	β_g	1

29.23 $E_u^1 \times T_g$

E_u^1	T_g	T_u		
		ζ_u	η_u	μ_u
β_u	ζ_g	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
β_u	η_g	0	0	$\frac{i(\sqrt{3}+i)}{2}$
β_u	μ_g	1	0	0

29.24 $E_u^1 \times T_u$

E_u^1	T_u	T_g		
		ζ_g	η_g	μ_g
β_u	ζ_u	0	0	$\frac{i(\sqrt{3}+i)}{2}$
β_u	η_u	1	0	0
β_u	μ_u	0	$-\frac{i(\sqrt{3}-i)}{2}$	0

29.25 $E_u^2 \times A_g$

E_u^2	A_g	E_u^2
		γ_u
γ_u	α_g	1

29.26 $E_u^2 \times A_u$

E_u^2	A_u	E_g^2
		γ_g
γ_u	α_u	1

29.27 $E_u^2 \times E_u^1$

E_u^2	E_u^1	A_g
		α_g
γ_u	β_u	1

29.28 $E_u^2 \times E_u^2$

E_u^2	E_u^2	E_g^1
		β_g
γ_u	γ_u	1

29.29 $E_u^2 \times E_g^2$

E_u^2	E_g^2	E_u^1
		β_u
γ_u	γ_g	1

29.30 $E_u^2 \times E_g^1$

E_u^2	E_g^1	A_u
		α_u
γ_u	β_g	1

29.31 $E_u^2 \times T_g$

E_u^2	T_g	T_u		
		ζ_u	η_u	μ_u
γ_u	ζ_g	0	$\frac{i(\sqrt{3}+i)}{2}$	0
γ_u	η_g	0	0	$-\frac{i(\sqrt{3}-i)}{2}$
γ_u	μ_g	1	0	0

29.32 $E_u^2 \times T_u$

E_u^2	T_u	T_g		
		ζ_g	η_g	μ_g
γ_u	ζ_u	0	0	$-\frac{i(\sqrt{3}-i)}{2}$
γ_u	η_u	1	0	0
γ_u	μ_u	0	$\frac{i(\sqrt{3}+i)}{2}$	0

29.33 $E_g^2 \times A_g$

E_g^2	A_g	E_g^2
		γ_g
γ_g	α_g	1

29.34 $E_g^2 \times A_u$

E_g^2	A_u	E_u^2
		γ_u
γ_g	α_u	1

29.35 $E_g^2 \times E_u^1$

E_g^2	E_u^1	A_u
		α_u
γ_g	β_u	1

29.36 $E_g^2 \times E_u^2$

E_g^2	E_u^2	E_u^1
		β_u
γ_g	γ_u	1

29.37 $E_g^2 \times E_g^2$

E_g^2	E_g^2	E_g^1
		β_g
γ_g	γ_g	1

29.38 $E_g^2 \times E_g^1$

E_g^2	E_g^1	A_g
		α_g
γ_g	β_g	1

29.39 $E_g^2 \times T_g$

E_g^2	T_g	T_g		
		ζ_g	η_g	μ_g
γ_g	ζ_g	1	0	0
γ_g	η_g	0	$\frac{i(\sqrt{3}+i)}{2}$	0
γ_g	μ_g	0	0	$-\frac{i(\sqrt{3}-i)}{2}$

29.40 $E_g^2 \times T_u$

E_g^2	T_u	T_u		
		ζ_u	η_u	μ_u
γ_g	ζ_u	1	0	0
γ_g	η_u	0	$\frac{i(\sqrt{3}+i)}{2}$	0
γ_g	μ_u	0	0	$-\frac{i(\sqrt{3}-i)}{2}$

29.41 $E_g^1 \times A_g$

E_g^1	A_g	E_g^1
		β_g
β_g	α_g	1

29.42 $E_g^1 \times A_u$

E_g^1	A_u	E_u^1
		β_u
β_g	α_u	1

29.43 $E_g^1 \times E_u^1$

E_g^1	E_u^1	E_u^2
		γ_u
β_g	β_u	1

29.44 $E_g^1 \times E_u^2$

E_g^1	E_u^2	A_u
		α_u
β_g	γ_u	1

29.45 $E_g^1 \times E_g^2$

E_g^1	E_g^2	A_g
		α_g
β_g	γ_g	1

29.46 $E_g^1 \times E_g^1$

E_g^1	E_g^1	E_g^2
		γ_g
β_g	β_g	1

29.47 $E_g^1 \times T_g$

E_g^1	T_g	T_g		
		ζ_g	η_g	μ_g
β_g	ζ_g	1	0	0
β_g	η_g	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
β_g	μ_g	0	0	$\frac{i(\sqrt{3}+i)}{2}$

29.48 $E_g^1 \times T_u$

E_g^1	T_u	T_u		
		ζ_u	η_u	μ_u
β_g	ζ_u	1	0	0
β_g	η_u	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
β_g	μ_u	0	0	$\frac{i(\sqrt{3}+i)}{2}$

29.49 $T_g \times A_g$

T_g	A_g	T_g		
		ζ_g	η_g	μ_g
ζ_g	α_g	1	0	0
η_g	α_g	0	1	0
μ_g	α_g	0	0	1

29.50 $T_g \times A_u$

T_g	A_u	T_u		
		ζ_u	η_u	μ_u
ζ_g	α_u	0	1	0
η_g	α_u	0	0	1
μ_g	α_u	1	0	0

29.51 $T_g \times E_u^1$

T_g	E_u^1	T_u		
		ζ_u	η_u	μ_u
ζ_g	β_u	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
η_g	β_u	0	0	$\frac{i(\sqrt{3}+i)}{2}$
μ_g	β_u	1	0	0

29.52 $T_g \times E_u^2$

T_g	E_u^2	T_u		
		ζ_u	η_u	μ_u
ζ_g	γ_u	0	$\frac{i(\sqrt{3}+i)}{2}$	0
η_g	γ_u	0	0	$-\frac{i(\sqrt{3}-i)}{2}$
μ_g	γ_u	1	0	0

29.53 $T_g \times E_g^2$

T_g	E_g^2	T_g		
		ζ_g	η_g	μ_g
ζ_g	γ_g	1	0	0
η_g	γ_g	0	$\frac{i(\sqrt{3}+i)}{2}$	0
μ_g	γ_g	0	0	$-\frac{i(\sqrt{3}-i)}{2}$

29.54 $T_g \times E_g^1$

T_g	E_g^1	T_g		
		ζ_g	η_g	μ_g
ζ_g	β_g	1	0	0
η_g	β_g	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
μ_g	β_g	0	0	$\frac{i(\sqrt{3}+i)}{2}$

29.55 $T_g \times T_g$

T_g	T_g	E_g^2	A_g	E_g^1	T_g		
		γ_g	α_g	β_g	ζ_g	η_g	μ_g
ζ_g	ζ_g	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0
ζ_g	η_g	0	0	0	0	0	0
ζ_g	μ_g	0	0	0	0	1	0
η_g	ζ_g	0	0	0	0	0	1
η_g	η_g	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0
η_g	μ_g	0	0	0	0	0	0
μ_g	ζ_g	0	0	0	0	0	0
μ_g	η_g	0	0	0	1	0	0
μ_g	μ_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	0	0	0

29.56 $T_g \times T_u$

T_g	T_u	E_u^2	A_u	E_u^1	T_u		
		γ_u	α_u	β_u	ζ_u	η_u	μ_u
ζ_g	ζ_u	0	0	0	0	0	1
ζ_g	η_u	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0
ζ_g	μ_u	0	0	0	0	0	0
η_g	ζ_u	0	0	0	0	0	0
η_g	η_u	0	0	0	1	0	0
η_g	μ_u	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0
μ_g	ζ_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	0	0	0
μ_g	η_u	0	0	0	0	0	0
μ_g	μ_u	0	0	0	0	1	0

29.57 $T_u \times A_g$

T_u	A_g	T_u		
		ζ_u	η_u	μ_u
ζ_u	α_g	1	0	0
η_u	α_g	0	1	0
μ_u	α_g	0	0	1

29.58 $T_u \times A_u$

T_u	A_u	T_g		
		ζ_g	η_g	μ_g
ζ_u	α_u	0	0	1
η_u	α_u	1	0	0
μ_u	α_u	0	1	0

29.59 $T_u \times E_u^1$

T_u	E_u^1	T_g		
		ζ_g	η_g	μ_g
ζ_u	β_u	0	0	$\frac{i(\sqrt{3}+i)}{2}$
η_u	β_u	1	0	0
μ_u	β_u	0	$-\frac{i(\sqrt{3}-i)}{2}$	0

29.60 $T_u \times E_u^2$

T_u	E_u^2	T_g		
		ζ_g	η_g	μ_g
ζ_u	γ_u	0	0	$-\frac{i(\sqrt{3}-i)}{2}$
η_u	γ_u	1	0	0
μ_u	γ_u	0	$\frac{i(\sqrt{3}+i)}{2}$	0

29.61 $T_u \times E_g^2$

T_u	E_g^2	T_u		
		ζ_u	η_u	μ_u
ζ_u	γ_g	1	0	0
η_u	γ_g	0	$\frac{i(\sqrt{3}+i)}{2}$	0
μ_u	γ_g	0	0	$-\frac{i(\sqrt{3}-i)}{2}$

29.62 $T_u \times E_g^1$

T_u	E_g^1	T_u		
		ζ_u	η_u	μ_u
ζ_u	β_g	1	0	0
η_u	β_g	0	$-\frac{i(\sqrt{3}-i)}{2}$	0
μ_u	β_g	0	0	$\frac{i(\sqrt{3}+i)}{2}$

29.63 $T_u \times T_g$

T_u	T_g	E_u^2	A_u	E_u^1	T_u		
		γ_u	α_u	β_u	ζ_u	η_u	μ_u
ζ_u	ζ_g	0	0	0	0	0	0
ζ_u	η_g	0	0	0	0	1	0
ζ_u	μ_g	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0
η_u	ζ_g	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0
η_u	η_g	0	0	0	0	0	0
η_u	μ_g	0	0	0	0	0	1
μ_u	ζ_g	0	0	0	1	0	0
μ_u	η_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	0	0	0
μ_u	μ_g	0	0	0	0	1	0

29.64 $T_u \times T_u$

T_u	T_u	E_g^2 γ_g	A_g α_g	E_g^1 β_g	T_g ζ_g	η_g	μ_g
ζ_u	ζ_u	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0
ζ_u	η_u	0	0	0	0	1	0
ζ_u	μ_u	0	0	0	0	0	0
η_u	ζ_u	0	0	0	0	0	0
η_u	η_u	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0
η_u	μ_u	0	0	0	0	0	1
μ_u	ζ_u	0	0	0	1	0	0
μ_u	η_u	0	0	0	0	0	0
μ_u	μ_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	0	0	0

30 Group O

30.1 $A_1 \times A_1$

A_1	A_1	A_1 α
α	α	1

30.2 $A_1 \times A_2$

A_1	A_2	A_2 β
α	β	1

30.3 $A_1 \times E$

A_1	E	E γ	E ζ
α	γ	1	0
α	ζ	0	1

30.4 $A_1 \times T_1$

A_1	T_1	T_1 η	T_1 μ	T_1 ν
α	η	1	0	0
α	μ	0	1	0
α	ν	0	0	1

30.5 $A_1 \times T_2$

A_1	T_2	T_2 ξ	T_2 ϕ	T_2 χ
α	ξ	1	0	0
α	ϕ	0	1	0
α	χ	0	0	1

30.6 $A_2 \times A_1$

A_2	A_1	A_2 β
β	α	1

30.7 $A_2 \times A_2$

A_2	A_2	A_1 α
β	β	1

30.8 $A_2 \times E$

A_2	E	E γ	E ζ
β	γ	0	-1
β	ζ	1	0

30.9 $A_2 \times T_1$

A_2	T_1	T_2 ξ	T_2 ϕ	T_2 χ
β	η	0	0	1
β	μ	1	0	0
β	ν	0	1	0

30.10 $A_2 \times T_2$

A_2	T_2	T_1 η	T_1 μ	T_1 ν
β	ξ	0	1	0
β	ϕ	0	0	1
β	χ	1	0	0

30.11 $E \times A_1$

E	A_1	E γ	E ζ
γ	α	1	0
ζ	α	0	1

30.12 $E \times A_2$

E	A_2	E γ	E ζ
γ	β	0	-1
ζ	β	1	0

30.13 $E \times E$

E	E	A_1 α	A_2 β	E γ	E ζ
γ	γ	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
γ	ζ	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
ζ	γ	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$
ζ	ζ	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0

30.14 $E \times T_1$

E	T_1	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
γ	η	$\frac{1}{2}$	0	0	0	0	$\frac{\sqrt{3}}{2}$
γ	μ	0	-1	0	0	0	0
γ	ν	0	0	$\frac{1}{2}$	0	$-\frac{\sqrt{3}}{2}$	0
ζ	η	$\frac{\sqrt{3}}{2}$	0	0	0	0	$-\frac{1}{2}$
ζ	μ	0	0	0	1	0	0
ζ	ν	0	0	$-\frac{\sqrt{3}}{2}$	0	$-\frac{1}{2}$	0

30.15 $E \times T_2$

E	T_2	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
γ	ξ	0	0	0	1	0	0
γ	ϕ	0	0	$\frac{\sqrt{3}}{2}$	0	$-\frac{1}{2}$	0
γ	χ	$-\frac{\sqrt{3}}{2}$	0	0	0	0	$-\frac{1}{2}$
ζ	ξ	0	-1	0	0	0	0
ζ	ϕ	0	0	$\frac{1}{2}$	0	$\frac{\sqrt{3}}{2}$	0
ζ	χ	$\frac{1}{2}$	0	0	0	0	$-\frac{\sqrt{3}}{2}$

30.16 $T_1 \times A_1$

T_1	A_1	T_1 η	T_1 μ	T_1 ν
η	α	1	0	0
μ	α	0	1	0
ν	α	0	0	1

30.17 $T_1 \times A_2$

T_1	A_2	T_2 ξ	T_2 ϕ	T_2 χ
η	β	0	0	1
μ	β	1	0	0
ν	β	0	1	0

30.18 $T_1 \times E$

T_1	E	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
η	γ	$\frac{1}{2}$	0	0	0	0	$\frac{\sqrt{3}}{2}$
η	ζ	$\frac{\sqrt{3}}{2}$	0	0	0	0	$-\frac{1}{2}$
μ	γ	0	-1	0	0	0	0
μ	ζ	0	0	0	1	0	0
ν	γ	0	0	$\frac{1}{2}$	0	$-\frac{\sqrt{3}}{2}$	0
ν	ζ	0	0	$-\frac{\sqrt{3}}{2}$	0	$-\frac{1}{2}$	0

30.19 $T_1 \times T_1$

T_1	T_1	A_1 α	E γ	E ζ	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
η	η	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{6}}{6}$	$\frac{\sqrt{2}}{2}$	0	0	0	0	0	0
η	μ	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
η	ν	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0	0
μ	η	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
μ	μ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{6}}{3}$	0	0	0	0	0	0	0
μ	ν	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	0	0	$\frac{\sqrt{2}}{2}$
ν	η	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0	0
ν	μ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	0	0	$\frac{\sqrt{2}}{2}$
ν	ν	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{6}}{6}$	$-\frac{\sqrt{2}}{2}$	0	0	0	0	0	0

30.20 $T_1 \times T_2$

T_1	T_2	A_2 β	E γ	E ζ	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
η	ξ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
η	ϕ	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0	0
η	χ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{6}}{6}$	0	0	0	0	0	0
μ	ξ	$\frac{\sqrt{3}}{3}$	0	$-\frac{\sqrt{6}}{3}$	0	0	0	0	0	0
μ	ϕ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	0	0	$\frac{\sqrt{2}}{2}$
μ	χ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
ν	ξ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	0	0	$-\frac{\sqrt{2}}{2}$
ν	ϕ	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{6}}{6}$	0	0	0	0	0	0
ν	χ	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0	0

30.21 $T_2 \times A_1$

T_2	A_1	T_2 ξ	T_2 ϕ	T_2 χ
ξ	α	1	0	0
ϕ	α	0	1	0
χ	α	0	0	1

30.22 $T_2 \times A_2$

T_2	A_2	T_1 η	T_1 μ	T_1 ν
ξ	β	0	1	0
ϕ	β	0	0	1
χ	β	1	0	0

30.23 $T_2 \times E$

T_2	E	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
ξ	γ	0	0	0	1	0	0
ξ	ζ	0	-1	0	0	0	0
ϕ	γ	0	0	$\frac{\sqrt{3}}{2}$	0	$-\frac{1}{2}$	0
ϕ	ζ	0	0	$\frac{1}{2}$	0	$\frac{\sqrt{3}}{2}$	0
χ	γ	$-\frac{\sqrt{3}}{2}$	0	0	0	0	$-\frac{1}{2}$
χ	ζ	$\frac{1}{2}$	0	0	0	0	$-\frac{\sqrt{3}}{2}$

30.24 $T_2 \times T_1$

T_2	T_1	A_2 β	E γ	E ζ	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
ξ	η	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ξ	μ	$\frac{\sqrt{3}}{3}$	0	$\frac{\sqrt{6}}{3}$	0	0	0	0	0	0
ξ	ν	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	0	0	$-\frac{\sqrt{2}}{2}$
ϕ	η	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0	0
ϕ	μ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	0	0	$\frac{\sqrt{2}}{2}$
ϕ	ν	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{6}}{6}$	0	0	0	0	0	0
χ	η	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{6}}{6}$	0	0	0	0	0	0
χ	μ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	0
χ	ν	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0	0

30.25 $T_2 \times T_2$

T_2	T_2	A_1 α	E γ	E ζ	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
ξ	ξ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{6}}{3}$	0	0	0	0	0	0	0
ξ	ϕ	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	0	0	$\frac{\sqrt{2}}{2}$
ξ	χ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
ϕ	ξ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	0	0	$\frac{\sqrt{2}}{2}$
ϕ	ϕ	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{6}}{6}$	$-\frac{\sqrt{2}}{2}$	0	0	0	0	0	0
ϕ	χ	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0	0
χ	ξ	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0
χ	ϕ	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	$\frac{\sqrt{2}}{2}$	0	0
χ	χ	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{6}}{6}$	$\frac{\sqrt{2}}{2}$	0	0	0	0	0	0

31 Group T_d

31.1 $A_1 \times A_1$

A_1	A_1	A_1 α
α	α	1

31.2 $A_1 \times A_2$

A_1	A_2	A_2 β
α	β	1

31.3 $A_1 \times E$

A_1	E	E γ	E ζ
α	γ	1	0
α	ζ	0	1

31.4 $A_1 \times T_2$

A_1	T_2	T_2 ξ	T_2 ϕ	T_2 χ
α	ξ	1	0	0
α	ϕ	0	1	0
α	χ	0	0	1

31.5 $A_1 \times T_1$

A_1	T_1	T_1 η	T_1 μ	T_1 ν
α	η	1	0	0
α	μ	0	1	0
α	ν	0	0	1

31.6 $A_2 \times A_1$

A_2	A_1	A_2 β
β	α	1

31.7 $A_2 \times A_2$

A_2	A_2	A_1 α
β	β	1

31.8 $A_2 \times E$

A_2	E	E γ	E ζ
β	γ	1	0
β	ζ	0	-1

31.9 $A_2 \times T_2$

A_2	T_2	T_1 η	T_1 μ	T_1 ν
β	ξ	1	0	0
β	ϕ	0	1	0
β	χ	0	0	1

31.10 $A_2 \times T_1$

A_2	T_1	T_2 ξ	T_2 ϕ	T_2 χ
β	η	1	0	0
β	μ	0	1	0
β	ν	0	0	1

31.11 $E \times A_1$

E	A_1	E γ	E ζ
γ	α	1	0
ζ	α	0	1

31.12 $E \times A_2$

E	A_2	E γ	E ζ
γ	β	1	0
ζ	β	0	-1

31.13 $E \times E$

E	E	A_1 α	A_2 β	E γ	E ζ
γ	γ	0	0	0	1
γ	ζ	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0	0
ζ	γ	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ	ζ	0	0	1	0

31.14 $E \times T_2$

E	T_2	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
γ	ξ	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
γ	ϕ	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ	χ	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ	ξ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ	ϕ	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ	χ	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

31.15 $E \times T_1$

E	T_1	T_1 η	T_1 μ	T_1 ν	T_2 ξ	T_2 ϕ	T_2 χ
γ	η	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
γ	μ	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ	ν	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ	η	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ	μ	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ	ν	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

31.16 $T_2 \times A_1$

T_2	A_1	T_2 ξ	T_2 ϕ	T_2 χ
ξ	α	1	0	0
ϕ	α	0	1	0
χ	α	0	0	1

31.17 $T_2 \times A_2$

T_2	A_2	T_1 η	T_1 μ	T_1 ν
ξ	β	1	0	0
ϕ	β	0	1	0
χ	β	0	0	1

31.18 $T_2 \times E$

T_2	E	T_1 η	μ	ν	T_2 ξ	ϕ	χ
ξ	γ	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ξ	ζ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ϕ	γ	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
ϕ	ζ	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
χ	γ	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
χ	ζ	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

31.19 $T_2 \times T_2$

T_2	T_2	A_1 α	E γ	ζ	T_1 η	μ	ν	T_2 ξ	ϕ	χ
ξ	ξ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
ξ	ϕ	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ξ	χ	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ	ξ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ	ϕ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ	χ	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ	ξ	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
χ	ϕ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ	χ	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

31.20 $T_2 \times T_1$

T_2	T_1	A_2 β	E γ	ζ	T_1 η	μ	ν	T_2 ξ	ϕ	χ
ξ	η	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
ξ	μ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ξ	ν	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ	η	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ	μ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ	ν	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
χ	η	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
χ	μ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ	ν	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

31.21 $T_1 \times A_1$

T_1	A_1	T_1 η	μ	ν
η	α	1	0	0
μ	α	0	1	0
ν	α	0	0	1

31.22 $T_1 \times A_2$

T_1	A_2	T_2 ξ	ϕ	χ
η	β	1	0	0
μ	β	0	1	0
ν	β	0	0	1

31.23 $T_1 \times E$

T_1	E	T_1 η	μ	ν	T_2 ξ	ϕ	χ
η	γ	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
η	ζ	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
μ	γ	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
μ	ζ	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ν	γ	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ν	ζ	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

31.24 $T_1 \times T_2$

T_1	T_2	A_2 β	E γ	ζ	T_1 η	μ	ν	T_2 ξ	ϕ	χ
η	ξ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
η	ϕ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η	χ	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ	ξ	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ	ϕ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ	χ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
ν	ξ	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
ν	ϕ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν	χ	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

31.25 $T_1 \times T_1$

T_1	T_1	A_1 α	E γ	ζ	T_1 η	μ	ν	T_2 ξ	ϕ	χ
η	η	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
η	μ	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η	ν	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ	η	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ	μ	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ	ν	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν	η	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ν	μ	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν	ν	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32 Group O_h

32.1 $A_{1g} \times A_{1g}$

A_{1g}	A_{1g}	A_{1g} α_g
α_g	α_g	1

32.2 $A_{1g} \times A_{2u}$

A_{1g}	A_{2u}	A_{2u} β_u
α_g	β_u	1

32.3 $A_{1g} \times A_{1u}$

A_{1g}	A_{1u}	A_{1u} α_u
α_g	α_u	1

32.4 $A_{1g} \times A_{2g}$

A_{1g}	A_{2g}	A_{2g} β_g
α_g	β_g	1

32.5 $A_{1g} \times E_u$

A_{1g}	E_u	E_u γ_u	ζ_u
α_g	γ_u	1	0
α_g	ζ_u	0	1

32.6 $A_{1g} \times E_g$

A_{1g}	E_g	E_g γ_g	ζ_g
α_g	γ_g	1	0
α_g	ζ_g	0	1

32.7 $A_{1g} \times T_{1g}$

A_{1g}	T_{1g}	T_{1g} η_g	μ_g	ν_g
α_g	η_g	1	0	0
α_g	μ_g	0	1	0
α_g	ν_g	0	0	1

32.8 $A_{1g} \times T_{2g}$

A_{1g}	T_{2g}	T_{2g} ξ_g	ϕ_g	χ_g
α_g	ξ_g	1	0	0
α_g	ϕ_g	0	1	0
α_g	χ_g	0	0	1

32.9 $A_{1g} \times T_{1u}$

A_{1g}	T_{1u}	T_{1u} η_u	μ_u	ν_u
α_g	η_u	1	0	0
α_g	μ_u	0	1	0
α_g	ν_u	0	0	1

32.10 $A_{1g} \times T_{2u}$

A_{1g}	T_{2u}	T_{2u} ξ_u	ϕ_u	χ_u
α_g	ξ_u	1	0	0
α_g	ϕ_u	0	1	0
α_g	χ_u	0	0	1

32.11 $A_{2u} \times A_{1g}$

A_{2u}	A_{1g}	A_{2u} β_u
β_u	α_g	1

32.12 $A_{2u} \times A_{2u}$

A_{2u}	A_{2u}	A_{1g} α_g
β_u	β_u	1

32.13 $A_{2u} \times A_{1u}$

A_{2u}	A_{1u}	A_{2g} β_g
β_u	α_u	1

32.14 $A_{2u} \times A_{2g}$

A_{2u}	A_{2g}	A_{1u} α_u
β_u	β_g	1

32.15 $A_{2u} \times E_u$

A_{2u}	E_u	E_g γ_g	ζ_g
β_u	γ_u	1	0
β_u	ζ_u	0	-1

32.16 $A_{2u} \times E_g$

A_{2u}	E_g	E_u γ_u	ζ_u
β_u	γ_g	1	0
β_u	ζ_g	0	-1

32.17 $A_{2u} \times T_{1g}$

A_{2u}	T_{1g}	T_{2u} ξ_u	ϕ_u	χ_u
β_u	η_g	1	0	0
β_u	μ_g	0	1	0
β_u	ν_g	0	0	1

32.18 $A_{2u} \times T_{2g}$

A_{2u}	T_{2g}	T_{1u} η_u	μ_u	ν_u
β_u	ξ_g	1	0	0
β_u	ϕ_g	0	1	0
β_u	χ_g	0	0	1

32.19 $A_{2u} \times T_{1u}$

A_{2u}	T_{1u}	T_{2g} ξ_g	ϕ_g	χ_g
β_u	η_u	1	0	0
β_u	μ_u	0	1	0
β_u	ν_u	0	0	1

32.20 $A_{2u} \times T_{2u}$

A_{2u}	T_{2u}	T_{1g} η_g	μ_g	ν_g
β_u	ξ_u	1	0	0
β_u	ϕ_u	0	1	0
β_u	χ_u	0	0	1

32.21 $A_{1u} \times A_{1g}$

A_{1u}	A_{1g}	A_{1u} α_u
α_u	α_g	1

32.22 $A_{1u} \times A_{2u}$

A_{1u}	A_{2u}	A_{2g} β_g
α_u	β_u	1

32.23 $A_{1u} \times A_{1u}$

A_{1u}	A_{1u}	A_{1g} α_g
α_u	α_u	1

32.24 $A_{1u} \times A_{2g}$

A_{1u}	A_{2g}	A_{2u} β_u
α_u	β_g	1

32.25 $A_{1u} \times E_u$

A_{1u}	E_u	E_g γ_g	ζ_g
α_u	γ_u	1	0
α_u	ζ_u	0	1

32.26 $A_{1u} \times E_g$

A_{1u}	E_g	E_u γ_u	ζ_u
α_u	γ_g	1	0
α_u	ζ_g	0	1

32.27 $A_{1u} \times T_{1g}$

A_{1u}	T_{1g}	T_{1u} η_u	μ_u	ν_u
α_u	η_g	1	0	0
α_u	μ_g	0	1	0
α_u	ν_g	0	0	1

32.28 $A_{1u} \times T_{2g}$

A_{1u}	T_{2g}	T_{2u} ξ_u	ϕ_u	χ_u
α_u	ξ_g	1	0	0
α_u	ϕ_g	0	1	0
α_u	χ_g	0	0	1

32.29 $A_{1u} \times T_{1u}$

A_{1u}	T_{1u}	T_{1g} η_g	μ_g	ν_g
α_u	η_u	1	0	0
α_u	μ_u	0	1	0
α_u	ν_u	0	0	1

32.30 $A_{1u} \times T_{2u}$

A_{1u}	T_{2u}	T_{2g} ξ_g	ϕ_g	χ_g
α_u	ξ_u	1	0	0
α_u	ϕ_u	0	1	0
α_u	χ_u	0	0	1

32.31 $A_{2g} \times A_{1g}$

A_{2g}	A_{1g}	A_{2g} β_g
β_g	α_g	1

32.32 $A_{2g} \times A_{2u}$

A_{2g}	A_{2u}	A_{1u} α_u
β_g	β_u	1

32.33 $A_{2g} \times A_{1u}$

A_{2g}	A_{1u}	A_{2u} β_u
β_g	α_u	1

32.34 $A_{2g} \times A_{2g}$

A_{2g}	A_{2g}	A_{1g} α_g
β_g	β_g	1

32.35 $A_{2g} \times E_u$

A_{2g}	E_u	E_u γ_u	ζ_u
β_g	γ_u	1	0
β_g	ζ_u	0	-1

32.36 $A_{2g} \times E_g$

A_{2g}	E_g	E_g γ_g	ζ_g
β_g	γ_g	1	0
β_g	ζ_g	0	-1

32.37 $A_{2g} \times T_{1g}$

A_{2g}	T_{1g}	T_{2g} ξ_g	ϕ_g	χ_g
β_g	η_g	1	0	0
β_g	μ_g	0	1	0
β_g	ν_g	0	0	1

32.38 $A_{2g} \times T_{2g}$

A_{2g}	T_{2g}	T_{1g} η_g	μ_g	ν_g
β_g	ξ_g	1	0	0
β_g	ϕ_g	0	1	0
β_g	χ_g	0	0	1

32.39 $A_{2g} \times T_{1u}$

A_{2g}	T_{1u}	T_{2u} ξ_u	ϕ_u	χ_u
β_g	η_u	1	0	0
β_g	μ_u	0	1	0
β_g	ν_u	0	0	1

32.40 $A_{2g} \times T_{2u}$

A_{2g}	T_{2u}	T_{1u} η_u	μ_u	ν_u
β_g	ξ_u	1	0	0
β_g	ϕ_u	0	1	0
β_g	χ_u	0	0	1

32.41 $E_u \times A_{1g}$

E_u	A_{1g}	E_u γ_u	ζ_u
γ_u	α_g	1	0
ζ_u	α_g	0	1

32.42 $E_u \times A_{2u}$

E_u	A_{2u}	E_g γ_g	ζ_g
γ_u	β_u	1	0
ζ_u	β_u	0	-1

32.43 $E_u \times A_{1u}$

E_u	A_{1u}	E_g γ_g	ζ_g
γ_u	α_u	1	0
ζ_u	α_u	0	1

32.44 $E_u \times A_{2g}$

E_u	A_{2g}	E_u γ_u	ζ_u
γ_u	β_g	1	0
ζ_u	β_g	0	-1

32.45 $E_u \times E_u$

E_u	E_u	A_{2g} β_g	A_{1g} α_g	E_g γ_g	ζ_g
γ_u	γ_u	0	0	0	1
γ_u	ζ_u	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	γ_u	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	ζ_u	0	0	1	0

32.46 $E_u \times E_g$

E_u	E_g	A_{1u} α_u	A_{2u} β_u	E_u γ_u	ζ_u
γ_u	γ_g	0	0	0	1
γ_u	ζ_g	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0	0
ζ_u	γ_g	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	ζ_g	0	0	1	0

32.47 $E_u \times T_{1g}$

		T_{1u}			T_{2u}		
E_u	T_{1g}	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
γ_u	η_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
γ_u	μ_g	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_u	ν_g	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_u	η_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	μ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_u	ν_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.48 $E_u \times T_{2g}$

		T_{1u}			T_{2u}		
E_u	T_{2g}	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
γ_u	ξ_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
γ_u	ϕ_g	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_u	χ_g	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_u	ξ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	ϕ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_u	χ_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.49 $E_u \times T_{1u}$

		T_{1g}			T_{2g}		
E_u	T_{1u}	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
γ_u	η_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
γ_u	μ_u	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_u	ν_u	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_u	η_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	μ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_u	ν_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.50 $E_u \times T_{2u}$

		T_{1g}			T_{2g}		
E_u	T_{2u}	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
γ_u	ξ_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
γ_u	ϕ_u	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_u	χ_u	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_u	ξ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_u	ϕ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_u	χ_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.51 $E_g \times A_{1g}$

		E_g	
E_g	A_{1g}	γ_g	ζ_g
γ_g	α_g	1	0
ζ_g	α_g	0	1

32.52 $E_g \times A_{2u}$

		E_u	
E_g	A_{2u}	γ_u	ζ_u
γ_g	β_u	1	0
ζ_g	β_u	0	−1

32.53 $E_g \times A_{1u}$

		E_u	
E_g	A_{1u}	γ_u	ζ_u
γ_g	α_u	1	0
ζ_g	α_u	0	1

32.54 $E_g \times A_{2g}$

		E_g	
E_g	A_{2g}	γ_g	ζ_g
γ_g	β_g	1	0
ζ_g	β_g	0	−1

32.55 $E_g \times E_u$

		A_{1u}	A_{2u}	E_u	
E_g	E_u	α_u	β_u	γ_u	ζ_u
γ_g	γ_u	0	0	0	1
γ_g	ζ_u	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0	0
ζ_g	γ_u	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	ζ_u	0	0	1	0

32.56 $E_g \times E_g$

		A_{2g}	A_{1g}	E_g	
E_g	E_g	β_g	α_g	γ_g	ζ_g
γ_g	γ_g	0	0	0	1
γ_g	ζ_g	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	γ_g	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	ζ_g	0	0	1	0

32.57 $E_g \times T_{1g}$

		T_{1g}			T_{2g}		
E_g	T_{1g}	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
γ_g	η_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
γ_g	μ_g	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_g	ν_g	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_g	η_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	μ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_g	ν_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.58 $E_g \times T_{2g}$

		T_{1g}			T_{2g}		
E_g	T_{2g}	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
γ_g	ξ_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
γ_g	ϕ_g	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_g	χ_g	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_g	ξ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	ϕ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_g	χ_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.59 $E_g \times T_{1u}$

		T_{1u}			T_{2u}		
E_g	T_{1u}	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
γ_g	η_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
γ_g	μ_u	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_g	ν_u	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_g	η_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	μ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_g	ν_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.60 $E_g \times T_{2u}$

		T_{1u}			T_{2u}		
E_g	T_{2u}	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
γ_g	ξ_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
γ_g	ϕ_u	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
γ_g	χ_u	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ζ_g	ξ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ζ_g	ϕ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ζ_g	χ_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.61 $T_{1g} \times A_{1g}$

		T_{1g}		
T_{1g}	A_{1g}	η_g	μ_g	ν_g
η_g	α_g	1	0	0
μ_g	α_g	0	1	0
ν_g	α_g	0	0	1

32.62 $T_{1g} \times A_{2u}$

		T_{2u}		
T_{1g}	A_{2u}	ξ_u	ϕ_u	χ_u
η_g	β_u	1	0	0
μ_g	β_u	0	1	0
ν_g	β_u	0	0	1

32.63 $T_{1g} \times A_{1u}$

		T_{1u}		
T_{1g}	A_{1u}	η_u	μ_u	ν_u
η_g	α_u	1	0	0
μ_g	α_u	0	1	0
ν_g	α_u	0	0	1

32.64 $T_{1g} \times A_{2g}$

		T_{2g}		
T_{1g}	A_{2g}	ξ_g	ϕ_g	χ_g
η_g	β_g	1	0	0
μ_g	β_g	0	1	0
ν_g	β_g	0	0	1

32.65 $T_{1g} \times E_u$

		T_{1u}			T_{2u}		
T_{1g}	E_u	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
η_g	γ_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
η_g	ζ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
μ_g	γ_u	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
μ_g	ζ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ν_g	γ_u	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ν_g	ζ_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.66 $T_{1g} \times E_g$

		T_{1g}			T_{2g}		
T_{1g}	E_g	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
η_g	γ_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
η_g	ζ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
μ_g	γ_g	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
μ_g	ζ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ν_g	γ_g	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ν_g	ζ_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.67 $T_{1g} \times T_{1g}$

		A_{1g}	E_g		T_{1g}			T_{2g}		
T_{1g}	T_{1g}	α_g	γ_g	ζ_g	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
η_g	η_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
η_g	μ_g	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_g	ν_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_g	η_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_g	μ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_g	ν_g	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_g	η_g	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ν_g	μ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_g	ν_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.68 $T_{1g} \times T_{2g}$

		A_{2g}	E_g		T_{1g}			T_{2g}		
T_{1g}	T_{2g}	β_g	γ_g	ζ_g	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
η_g	ξ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
η_g	ϕ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η_g	χ_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_g	ξ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_g	ϕ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_g	χ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
ν_g	ξ_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
ν_g	ϕ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_g	χ_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.69 $T_{1g} \times T_{1u}$

		A_{1u}	E_u		T_{1u}			T_{2u}		
T_{1g}	T_{1u}	α_u	γ_u	ζ_u	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
η_g	η_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
η_g	μ_u	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_g	ν_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_g	η_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_g	μ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_g	ν_u	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_g	η_u	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ν_g	μ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_g	ν_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.70 $T_{1g} \times T_{2u}$

		A_{2u}	E_u		T_{1u}			T_{2u}		
T_{1g}	T_{2u}	β_u	γ_u	ζ_u	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
η_g	ξ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
η_g	ϕ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η_g	χ_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_g	ξ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_g	ϕ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_g	χ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
ν_g	ξ_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
ν_g	ϕ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_g	χ_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.71 $T_{2g} \times A_{1g}$

		T_{2g}		
T_{2g}	A_{1g}	ξ_g	ϕ_g	χ_g
ξ_g	α_g	1	0	0
ϕ_g	α_g	0	1	0
χ_g	α_g	0	0	1

32.72 $T_{2g} \times A_{2u}$

		T_{1u}		
T_{2g}	A_{2u}	η_u	μ_u	ν_u
ξ_g	β_u	1	0	0
ϕ_g	β_u	0	1	0
χ_g	β_u	0	0	1

32.73 $T_{2g} \times A_{1u}$

		T_{2u}		
T_{2g}	A_{1u}	ξ_u	ϕ_u	χ_u
ξ_g	α_u	1	0	0
ϕ_g	α_u	0	1	0
χ_g	α_u	0	0	1

32.74 $T_{2g} \times A_{2g}$

		T_{1g}		
T_{2g}	A_{2g}	η_g	μ_g	ν_g
ξ_g	β_g	1	0	0
ϕ_g	β_g	0	1	0
χ_g	β_g	0	0	1

32.75 $T_{2g} \times E_u$

		T_{1u}			T_{2u}		
T_{2g}	E_u	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
ξ_g	γ_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ξ_g	ζ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ϕ_g	γ_u	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
ϕ_g	ζ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
χ_g	γ_u	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
χ_g	ζ_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.76 $T_{2g} \times E_g$

		T_{1g}			T_{2g}		
T_{2g}	E_g	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
ξ_g	γ_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ξ_g	ζ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ϕ_g	γ_g	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
ϕ_g	ζ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
χ_g	γ_g	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
χ_g	ζ_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.77 $T_{2g} \times T_{1g}$

		A_{2g}	E_g		T_{1g}			T_{2g}		
T_{2g}	T_{1g}	β_g	γ_g	ζ_g	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
ξ_g	η_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
ξ_g	μ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ξ_g	ν_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_g	η_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_g	μ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_g	ν_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
χ_g	η_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
χ_g	μ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_g	ν_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.78 $T_{2g} \times T_{2g}$

		A_{1g}	E_g		T_{1g}			T_{2g}		
T_{2g}	T_{2g}	α_g	γ_g	ζ_g	η_g	μ_g	ν_g	ξ_g	ϕ_g	χ_g
ξ_g	ξ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
ξ_g	ϕ_g	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ξ_g	χ_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_g	ξ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_g	ϕ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_g	χ_g	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_g	ξ_g	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
χ_g	ϕ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_g	χ_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.79 $T_{2g} \times T_{1u}$

		A_{2u}	E_u		T_{1u}			T_{2u}		
T_{2g}	T_{1u}	β_u	γ_u	ζ_u	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
ξ_g	η_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
ξ_g	μ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ξ_g	ν_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_g	η_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_g	μ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_g	ν_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
χ_g	η_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
χ_g	μ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_g	ν_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.80 $T_{2g} \times T_{2u}$

		A_{1u}	E_u		T_{1u}			T_{2u}		
T_{2g}	T_{2u}	α_u	γ_u	ζ_u	η_u	μ_u	ν_u	ξ_u	ϕ_u	χ_u
ξ_g	ξ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
ξ_g	ϕ_u	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ξ_g	χ_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_g	ξ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_g	ϕ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_g	χ_u	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_g	ξ_u	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
χ_g	ϕ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_g	χ_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.81 $T_{1u} \times A_{1g}$

		T_{1u}		
T_{1u}	A_{1g}	η_u	μ_u	ν_u
η_u	α_g	1	0	0
μ_u	α_g	0	1	0
ν_u	α_g	0	0	1

32.82 $T_{1u} \times A_{2u}$

		T_{2g}		
T_{1u}	A_{2u}	ξ_g	ϕ_g	χ_g
η_u	β_u	1	0	0
μ_u	β_u	0	1	0
ν_u	β_u	0	0	1

32.83 $T_{1u} \times A_{1u}$

		T_{1g}		
T_{1u}	A_{1u}	η_g	μ_g	ν_g
η_u	α_u	1	0	0
μ_u	α_u	0	1	0
ν_u	α_u	0	0	1

32.84 $T_{1u} \times A_{2g}$

		T_{2u}		
T_{1u}	A_{2g}	ξ_u	ϕ_u	χ_u
η_u	β_g	1	0	0
μ_u	β_g	0	1	0
ν_u	β_g	0	0	1

32.85 $T_{1u} \times E_u$

T_{1u}	E_u	T_{1g} η_g	μ_g	ν_g	T_{2g} ξ_g	ϕ_g	χ_g
η_u	γ_u	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
η_u	ζ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
μ_u	γ_u	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
μ_u	ζ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ν_u	γ_u	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ν_u	ζ_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.86 $T_{1u} \times E_g$

T_{1u}	E_g	T_{1u} η_u	μ_u	ν_u	T_{2u} ξ_u	ϕ_u	χ_u
η_u	γ_g	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
η_u	ζ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
μ_u	γ_g	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
μ_u	ζ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
ν_u	γ_g	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
ν_u	ζ_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.87 $T_{1u} \times T_{1g}$

T_{1u}	T_{1g}	A_{1u} α_u	E_u γ_u	ζ_u	T_{1u} η_u	μ_u	ν_u	T_{2u} ξ_u	ϕ_u	χ_u
η_u	η_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
η_u	μ_g	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_u	ν_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_u	η_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_u	μ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_u	ν_g	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_u	η_g	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ν_u	μ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_u	ν_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.88 $T_{1u} \times T_{2g}$

T_{1u}	T_{2g}	A_{2u} β_u	E_u γ_u	ζ_u	T_{1u} η_u	μ_u	ν_u	T_{2u} ξ_u	ϕ_u	χ_u
η_u	ξ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
η_u	ϕ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η_u	χ_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_u	ξ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_u	ϕ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_u	χ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
ν_u	ξ_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
ν_u	ϕ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_u	χ_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.89 $T_{1u} \times T_{1u}$

T_{1u}	T_{1u}	A_{1g} α_g	E_g γ_g	ζ_g	T_{1g} η_g	μ_g	ν_g	T_{2g} ξ_g	ϕ_g	χ_g
η_u	η_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
η_u	μ_u	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
η_u	ν_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_u	η_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_u	μ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_u	ν_u	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_u	η_u	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ν_u	μ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_u	ν_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.90 $T_{1u} \times T_{2u}$

T_{1u}	T_{2u}	A_{2g} β_g	E_g γ_g	ζ_g	T_{1g} η_g	μ_g	ν_g	T_{2g} ξ_g	ϕ_g	χ_g
η_u	ξ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
η_u	ϕ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
η_u	χ_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
μ_u	ξ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
μ_u	ϕ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
μ_u	χ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
ν_u	ξ_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
ν_u	ϕ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ν_u	χ_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.91 $T_{2u} \times A_{1g}$

T_{2u}	A_{1g}	T_{2u} ξ_u	ϕ_u	χ_u
ξ_u	α_g	1	0	0
ϕ_u	α_g	0	1	0
χ_u	α_g	0	0	1

32.92 $T_{2u} \times A_{2u}$

T_{2u}	A_{2u}	T_{1g} η_g	μ_g	ν_g
ξ_u	β_u	1	0	0
ϕ_u	β_u	0	1	0
χ_u	β_u	0	0	1

32.93 $T_{2u} \times A_{1u}$

T_{2u}	A_{1u}	T_{2g} ξ_g	ϕ_g	χ_g
ξ_u	α_u	1	0	0
ϕ_u	α_u	0	1	0
χ_u	α_u	0	0	1

32.94 $T_{2u} \times A_{2g}$

T_{2u}	A_{2g}	T_{1u} η_u	μ_u	ν_u
ξ_u	β_g	1	0	0
ϕ_u	β_g	0	1	0
χ_u	β_g	0	0	1

32.95 $T_{2u} \times E_u$

T_{2u}	E_u	T_{1g} η_g	μ_g	ν_g	T_{2g} ξ_g	ϕ_g	χ_g
ξ_u	γ_u	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ξ_u	ζ_u	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ϕ_u	γ_u	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
ϕ_u	ζ_u	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
χ_u	γ_u	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
χ_u	ζ_u	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.96 $T_{2u} \times E_g$

T_{2u}	E_g	T_{1u} η_u	μ_u	ν_u	T_{2u} ξ_u	ϕ_u	χ_u
ξ_u	γ_g	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ξ_u	ζ_g	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
ϕ_u	γ_g	0	$-\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0
ϕ_u	ζ_g	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0
χ_u	γ_g	0	0	$\frac{\sqrt[3]{-1}\sqrt{2}}{2}$	0	0	$-\frac{\sqrt[3]{-1}\sqrt{2}}{2}$
χ_u	ζ_g	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$	0	0	$\frac{(-1)^{\frac{2}{3}}\sqrt{2}}{2}$

32.97 $T_{2u} \times T_{1g}$

T_{2u}	T_{1g}	A_{2u} β_u	E_u γ_u	ζ_u	T_{1u} η_u	μ_u	ν_u	T_{2u} ξ_u	ϕ_u	χ_u
ξ_u	η_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
ξ_u	μ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ξ_u	ν_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_u	η_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_u	μ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_u	ν_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
χ_u	η_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
χ_u	μ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_u	ν_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.98 $T_{2u} \times T_{2g}$

T_{2u}	T_{2g}	A_{1u} α_u	E_u γ_u	ζ_u	T_{1u} η_u	μ_u	ν_u	T_{2u} ξ_u	ϕ_u	χ_u
ξ_u	ξ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
ξ_u	ϕ_g	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ξ_u	χ_g	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_u	ξ_g	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_u	ϕ_g	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_u	χ_g	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_u	ξ_g	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
χ_u	ϕ_g	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_u	χ_g	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0

32.99 $T_{2u} \times T_{1u}$

T_{2u}	T_{1u}	A_{2g} β_g	E_g γ_g	ζ_g	T_{1g} η_g	μ_g	ν_g	T_{2g} ξ_g	ϕ_g	χ_g
ξ_u	η_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0
ξ_u	μ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$
ξ_u	ν_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_u	η_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_u	μ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$-\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_u	ν_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0	0
χ_u	η_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$-\frac{\sqrt{2}}{2}$	0
χ_u	μ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_u	ν_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0

32.100 $T_{2u} \times T_{2u}$

T_{2u}	T_{2u}	A_{1g} α_g	E_g γ_g	ζ_g	T_{1g} η_g	μ_g	ν_g	T_{2g} ξ_g	ϕ_g	χ_g
ξ_u	ξ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	$-\frac{\sqrt{3}}{6}-\frac{i}{2}$	0	0	0	0	0	0
ξ_u	ϕ_u	0	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ξ_u	χ_u	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
ϕ_u	ξ_u	0	0	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$
ϕ_u	ϕ_u	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	$\frac{\sqrt{3}}{3}$	0	0	0	0	0	0
ϕ_u	χ_u	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_u	ξ_u	0	0	0	0	$-\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0
χ_u	ϕ_u	0	0	0	$\frac{\sqrt{2}}{2}$	0	0	$\frac{\sqrt{2}}{2}$	0	0
χ_u	χ_u	$\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{6}+\frac{i}{2}$	0	0	0	0	0	0