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Table 5 Coefficients associated with the collisional moments  $\mathcal{J}_M[V^2\omega^2]$  and  $\mathcal{J}_M[(\mathbf{V} \cdot \boldsymbol{\omega})^2]$  in Table 1 in the special cases of (i) inelastic and perfectly smooth particles ( $\alpha < 1, \beta = -1$ ) and (ii) elastic and perfectly rough particles ( $\alpha = \beta = 1$ ).

From: [Granular Gas of Inelastic and Rough Maxwell Particles](#)

Coefficient	(i) Inelastic and perfectly smooth ( $\alpha < 1, \beta = -1$ )	(ii) Elastic and perfectly rough ( $\alpha = \beta = 1$ )
$\chi_{22 40}^{(1)}$	0	$\frac{8}{\kappa^2} \chi_{40 22}^{(1)}$
$\chi_{22 40}^{(2)}$	0	$-\frac{128}{\kappa^3} \chi_{40 04}$
$\chi_{22 22}^{(1)}$	$\frac{(1 + \alpha)(3 - \alpha)}{12}$	$\frac{7 + 44\kappa + 18\kappa^2 + 60\kappa^3 + 15\kappa^4}{15(1 + \kappa)^4}$
$\chi_{22 22}^{(2)}$	$-\frac{(1 + \alpha)^2}{12}$	$-\frac{7 - 16\kappa + 26\kappa^2 + 15\kappa^4}{15(1 + \kappa)^4}$
$\chi_{22 22}^{(3)}$	0	$\frac{4(1 + 2\kappa + 9\kappa^2)}{15(1 + \kappa)^4}$
$\chi_{22 22}^{(4)}$	0	$-\frac{4(1 + 7\kappa + 3\kappa^2 + 5\kappa^3)}{15(1 + \kappa)^4}$
$\chi_{22 22}^{(5)}$	0	$-\frac{4\kappa(5 - 6\kappa + 5\kappa^2)}{15(1 + \kappa)^4}$
$\chi_{22 22}^{(6)}$	0	$-2\chi_{22 22}^{(5)}$
$\chi_{22 22}^{(7)}$	0	$\frac{32}{\kappa^2} \chi_{40 04}$
$\chi_{22 22}^{(8)}$	0	$-\frac{4}{\kappa} \chi_{40 22}^{(1)}$

<b>Coefficient</b>	<b>(i) Inelastic and perfectly smooth</b>	<b>(ii) Elastic and perfectly rough</b>
	$(\alpha < 1, \beta = -1)$	$(\alpha = \beta = 1)$
$\chi_{22 22}^{(9)}$	0	$-\frac{4\kappa(5 - 22\kappa + 5\kappa^2)}{15(1 + \kappa)^4}$
$\chi_{22 04}^{(1)}$	0	$\frac{1}{2}\chi_{40 22}^{(1)}$
$\chi_{22 04}^{(2)}$	0	$-\frac{8}{\kappa}\chi_{40 04}$
$\chi_{22 04}^{(3)}$	0	$\frac{\kappa}{4}\chi_{22 22}^{(5)}$
$\bar{\chi}_{22 40}$	0	$-\frac{1}{\kappa}\chi_{20 20}$
$\bar{\chi}_{22 22}^{(1)}$	$\frac{(1 + \alpha)(9 - \alpha)}{30}$	1
$\bar{\chi}_{22 22}^{(2)}$	$\frac{1}{5}\chi_{22 22}^{(2)}$	0
$\bar{\chi}_{22 22}^{(3)}$	$\frac{1}{5}\chi_{22 22}^{(2)}$	$-\frac{1}{10\kappa}\chi_{20 20}$
$\bar{\chi}_{22 22}^{(4)}$	$\frac{2}{5}\chi_{22 22}^{(2)}$	$-\frac{9 + 10\kappa + 15\kappa^2}{15(1 + \kappa)^2}$
$\bar{\chi}_{22 22}^{(5)}$	0	0
$\bar{\chi}_{22 22}^{(6)}$	0	0
$\bar{\chi}_{22 22}^{(7)}$	0	$\bar{\varphi}_{12 12}^{(5)}$
$\bar{\chi}_{22 22}^{(8)}$	0	$\bar{\varphi}_{12 12}^{(3)}$
$\bar{\chi}_{22 22}^{(9)}$	0	$-\frac{1}{10\kappa}\chi_{20 20}$
$\bar{\chi}_{22 04}$	0	$-\frac{\kappa}{16}\chi_{20 20}$

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