Erratum to: Self-similar solution of cylindrical shock wave propagation in a rotational axisymmetric mixture of a non-ideal gas and small solid particles

G. Nath

Published online: 26 July 2012
© Springer Science+Business Media B.V. 2012

Erratum to: Meccanica
DOI 10.1007/s11012-012-9543-4

The authors wish to apologize for any inconvenience caused due to the fact that erroneous versions of several equations were published. Please find below the correct equations mentioned that should be regarded by the reader as the final versions

(1) Below Eq. (34)

$$a_a = \left(\frac{[(1 - Z_a)\{\Gamma(1 - Z_a) - 2Z_a\} + b\rho_a(1 - K_p)\{2\Gamma(1 - Z_a) - Z_a\}]p_a}{\rho_a(1 - Z_a)[(1 - Z_a) + b\rho_a(1 - K_p)]} \right)^{\frac{1}{2}},$$

read as

$$a_a = \left(\frac{[\Gamma(1 - Z_a)^2 + b\rho_a(1 - K_p)\{2\Gamma(1 - Z_a) + Z_a\}]p_a}{\rho_a(1 - Z_a)[(1 - Z_a) + b\rho_a(1 - K_p)]} \right)^{\frac{1}{2}}.$$

(2) Below Eq. (34)

$$M_e^2 = \frac{(1 - Z_a)[(1 - Z_a) + b\rho_a(1 - K_p)]\gamma M^2}{[(1 - Z_a)\{\Gamma(1 - Z_a) - 2Z_a\} + b\rho_a(1 - K_p)\{2\Gamma(1 - Z_a) - Z_a\}]},$$

read as

$$M_e^2 = \frac{(1 - Z_a)[(1 - Z_a) + b\rho_a(1 - K_p)]\gamma M^2}{[\Gamma(1 - Z_a)^2 + b\rho_a(1 - K_p)\{2\Gamma(1 - Z_a) + Z_a\}]}.$$

The online version of the original article can be found under doi:[10.1007/s11012-012-9543-4](https://doi.org/10.1007/s11012-012-9543-4).

G. Nath (✉)
Department of Mathematics, National Institute of Technology Raipur, G.E. Road, Raipur 492010, India
e-mail: gn_chaurasia_univgkp@yahoo.in

(3) Below Eq. (34)

$$M_e^2 = \frac{W_s^2}{a_a^2} = \frac{(1 - Z_a)\rho_a W_s^2[(1 - Z_a) + b\rho_a(1 - K_p)]}{[(1 - Z_a)\{\Gamma(1 - Z_a) - 2Z_a\} + b\rho_a(1 - K_p)\{2\Gamma(1 - Z_a) - Z_a\}]p_a},$$

read as

$$M_e^2 = \frac{W_s^2}{a_a^2} = \frac{(1 - Z_a)\rho_a W_s^2[(1 - Z_a) + b\rho_a(1 - K_p)]}{[\Gamma(1 - Z_a)^2 + b\rho_a(1 - K_p)\{2\Gamma(1 - Z_a) + Z_a\}]p_a}.$$

(4) Equation (45)

$$\begin{aligned} M_e^2 &= \frac{(1 - Z_a)[(1 - Z_a) + \bar{b}(1 - K_p)]2n(n + 1)^{\frac{(n-1)}{(n+1)}}}{[(1 - Z_a)\{\Gamma(1 - Z_a) - 2Z_a\} + \bar{b}(1 - K_p)\{2\Gamma(1 - Z_a) - Z_a\}]B^2} (CV_0)^{\frac{2}{(n+1)}} \\ &= \text{constant}, \end{aligned} \quad (45)$$

read as

$$\begin{aligned} M_e^2 &= \frac{(1 - Z_a)[(1 - Z_a) + \bar{b}(1 - K_p)]2n(n + 1)^{\frac{(n-1)}{(n+1)}}}{[\Gamma(1 - Z_a)^2 + \bar{b}(1 - K_p)\{2\Gamma(1 - Z_a) + Z_a\}]B^2} (CV_0)^{\frac{2}{(n+1)}} \\ &= \text{constant}. \end{aligned} \quad (45)$$

(5) Equation (63)

$$a_m = \left(\frac{\partial p}{\partial \rho}\right)_s^{\frac{1}{2}} = \left[\frac{[(1 - Z)\{\Gamma(1 - Z) - 2Z\}] + \{2\Gamma(1 - Z) - Z\}b\rho(1 - K_p)]p}{(1 - Z)\rho\{(1 - Z) + b\rho(1 - K_p)\}}\right]^{\frac{1}{2}}, \quad (63)$$

read as

$$a_m = \left(\frac{\partial p}{\partial \rho}\right)_s^{\frac{1}{2}} = \left[\frac{[\Gamma(1 - Z)^2 + \{2\Gamma(1 - Z) + Z\}b\rho(1 - K_p)]p}{(1 - Z)\rho\{(1 - Z) + b\rho(1 - K_p)\}}\right]^{\frac{1}{2}}. \quad (63)$$

(6) Equation (64)

$$\begin{aligned} C_{adi} &= -\rho \left(\frac{\partial}{\partial p} \left(\frac{1}{\rho}\right)\right)_s \\ &= \frac{1}{\rho a_m^2} = \frac{(1 - Z)[(1 - Z) + b\rho(1 - K_p)]}{[(1 - Z)\{\Gamma(1 - Z) - 2Z\}] + \{2\Gamma(1 - Z) - Z\}b\rho(1 - K_p)]p}, \end{aligned} \quad (64)$$

read as

$$\begin{aligned} C_{adi} &= -\rho \left(\frac{\partial}{\partial p} \left(\frac{1}{\rho}\right)\right)_s \\ &= \frac{1}{\rho a_m^2} = \frac{(1 - Z)[(1 - Z) + b\rho(1 - K_p)]}{[\Gamma(1 - Z)^2 + \{2\Gamma(1 - Z) + Z\}b\rho(1 - K_p)]p}. \end{aligned} \quad (64)$$

(7) Below Eq. (69)

$$J = J(\eta) = \frac{PZ_a^2 D^2 [1 - \bar{b}(1 - K_p)] - P - P(\Gamma - 1)[(1 - Z_a D) + \bar{b}D(1 - K_p)]^2}{D(1 - Z_a D)[(1 - Z_a D) + \bar{b}D(1 - K_p)]},$$

read as

$$J = J(\eta) = \frac{P[D\bar{b}(1 - K_p)(Z_a D - 2) - (1 - Z_a D)^2] - P(\Gamma - 1)[(1 - Z_a D) + \bar{b}D(1 - K_p)]^2}{D(1 - Z_a D)[(1 - Z_a D) + \bar{b}D(1 - K_p)]}.$$

(8) Equation (75)

$$(C_{adi})p_a = \frac{(n+1)^2(1-Z_a D)[(1-Z_a D) + \bar{b}D(1-K_p)]}{\eta^2[(1-Z_a D)\{\Gamma(1-Z_a D) - 2Z_a D\} + \bar{b}D(1-K_p)\{2\Gamma(1-Z_a D) - Z_a D\}]\gamma M^2 P}, \quad (75)$$

read as

$$(C_{adi})p_a = \frac{(n+1)^2(1-Z_a D)[(1-Z_a D) + \bar{b}D(1-K_p)]}{\eta^2[\Gamma(1-Z_a D)^2 + \bar{b}D(1-K_p)\{2\Gamma(1-Z_a D) + Z_a D\}]\gamma M^2 P}. \quad (75)$$

(9) Equation (77)

$$\frac{D^{\Gamma+(\frac{n}{n+1})}[(1-Z_a D) + \bar{b}D(1-K_p)]^{\{1-\frac{\bar{b}(1-K_p)Z_a(Z_a+1)-2Z_a^2}{\bar{b}(1-K_p)[\bar{b}(1-K_p)-Z_a]}\}}}{[1-Z_a D]^{\{Z_a+\frac{(\Gamma-1)\bar{b}(1-K_p)}{Z_a}\}}} = \frac{P\eta^{(\frac{2}{n+1})}}{C_1}[U-n-1]^{-(\frac{n}{n+1})}, \quad (77)$$

read as

$$\frac{D^{\Gamma+(\frac{n}{n+1})}[(1-Z_a D) + \bar{b}D(1-K_p)]}{[1-Z_a D]^{\{1+\frac{(\Gamma-1)\bar{b}(1-K_p)}{Z_a}\}}} = \frac{P\eta^{(\frac{2}{n+1})}}{C_1}[U-n-1]^{-(\frac{n}{n+1})}. \quad (77)$$