The unit vector $\vec{n}$ to the separation surface will have the Ox_3 direction, $\vec{t}$ will have the Ox_1 direction and $\vec{\tau}$ will have the Ox_2 direction, so:

$$\vec{n}=\vec{i}_3\,;\ (\alpha_1=0;\beta_1=0;\delta_1=1);\ \vec{t}=\vec{i}_1\,;\ (\alpha_2=1;\beta_2=0;\delta_2=0);\ \vec{\tau}=\vec{i}_2\,;\ (\alpha_3=0;\beta_3=1;\delta_3=0). \qquad (59)$$

$$[M]=\begin{bmatrix}1&0&0\\0&1&0\\0&0&1\end{bmatrix};[N]=\begin{bmatrix}0&0&0\\0&0&0\\0&0&0\end{bmatrix};\ [P]=\begin{bmatrix}0&0&0\\0&0&0\\0&0&0\end{bmatrix};\ [R]=\begin{bmatrix}1&0&0\\0&1&0\\0&0&1\end{bmatrix}; \qquad (60)$$

$$[E]=\begin{bmatrix}1&0&0\\0&1&0\\0&0&1\end{bmatrix};\ [F]=\begin{bmatrix}0&0&0\\0&0&0\\0&0&0\end{bmatrix};\ [G]=\begin{bmatrix}0&0&0\\0&0&0\\0&0&0\end{bmatrix};\ [H]=\begin{bmatrix}1&0&0\\0&1&0\\0&0&1\end{bmatrix}; \qquad (61)$$

With all that, we'll have:

$$\sum_{k=1}^{2}[[M_k]+[N_k]\cdot[D_k]]=[I];\ \sum_{k=1}^{2}[G_k]\cdot[T_k]=[0];$$
$$\sum_{k=1}^{2}[E_k]\cdot[T_k]=v_1[A_1]^{-1}+v_2[A_2]^{-1}\overset{not.}{=}[\varphi];\ \ \sum_{k=1}^{2}[N_k]\cdot[L_k]=[0],$$
$$\sum_{k=1}^{2}[[F_k]+[G_k]\cdot[U_k]]=-\left[v_1[A_1]^{-1}[B_1]+v_2[A_2]^{-1}[B_2]\right]\overset{not.}{=}-[\psi]; \qquad (62)$$
$$\sum_{k=1}^{2}[[H_k]+[G_k]\cdot[U_k]]=[I];$$
$$\sum_{k=1}^{2}[[P_k]+[R_k]\cdot[D_k]]=v_1[B_1]^t[A_1]^{-1}+v_2[B_2]^t[A_2]^{-1}=[\psi]^t;$$
$$\sum_{k=1}^{2}[R_k]\cdot[L_k]=v_1\left[[C_1]-[B_1]^t[A_1]^{-1}[B_1]\right]+v_2\left[[C_2]-[B_2]^t[A_2]^{-1}[B_2]\right]\overset{not.}{=}[\xi].$$

This way (51); (52); (53); (54) takes the form:

$$[I]=[A][\varphi];\ [0]=-[A][\psi]+[B];\ [\psi]^t=[B'][\varphi];\ [\xi]=-[B'][\psi]+[C]. \qquad (63)$$

So:
$$[A]=[\varphi]^{-1}=\left[v_1[A_1]^{-1}+v_2[A_2]^{-1}\right]^{-1}; \qquad (64)$$
$$[B]=[\varphi]^{-1}[\psi]=\left[v_1[A_1]^{-1}+v_2[A_2]^{-1}\right]^{-1}\cdot\left[v_1[A_1]^{-1}[B_1]+v_2[A_2]^{-1}[B_2]\right]^{-1}; \qquad \mathbf{(65)}$$
$$[B']=[\psi]^t[\varphi]^{-1}=\left[v_1[B_1]^t[A_1]^{-1}+v_2[B_2]^t[A_2]^{-1}\right]\cdot\left[v_1[A_1]^{-1}+v_2[A_2]^{-1}\right]^{-1}; \qquad \mathbf{(66)}$$
$$[C]=[\xi]+[\psi]^t[\varphi]^{-1}[\psi]=v_1\left[[C_1]-[B_1]^t[A_1]^{-1}[B_1]\right]+$$
$$+v_2\left[[C_2]-[B_2]^t[A_2]^{-1}[B_2]\right]+\left[v_1[B_1]^t[A_1]^{-1}+v_2[B_2]^t[A_2]^{-1}\right]\cdot$$
$$\cdot\left[v_1[A_1]^{-1}+v_2[A_2]^{-1}\right]^{-1}\cdot\left[v_1[A_1]^{-1}[B_1]+v_2[A_2]^{-1}[B_2]\right]. \qquad (67)$$

Where v_1 and v_2 are the volumic ratios for both phases. The matrices $[A_1]$ and $[A_2]$ are symmetric. It's easy to verify that:

$$[A]^t = [A];\ [B'] = [B]^t;\ [C]^t = [C]. \tag{68}$$

So, the rigidity matrix of the composite material is symmetric and that confirms once more the validity of the hypothesis adopted.

So, we have:

$$E_1^{(c)} = E_2^{(c)} = \frac{v_1^2 E_1^2 \left(1-\upsilon_2^2\right) + v_2^2 E_2^2 \left(1-\upsilon_2^2\right) + 2 v_1 v_2 E_1 E_2 \left(1-\upsilon_1 \upsilon_2\right)}{v_1 E_1 \left(1-\upsilon_2^2\right) + v_2 E_2 \left(1-\upsilon_1^2\right)}; \tag{69}$$

$$\upsilon_{12}^{(c)} = \upsilon_{21}^{(c)} = \frac{v_1 \upsilon_1 E_1 \left(1-\upsilon_2^2\right) + v_2 \upsilon_2 E_2 \left(1-\upsilon_1^2\right)}{v_1 E_1 \left(1-\upsilon_2^2\right) + v_2 E_2 \left(1-\upsilon_1^2\right)}; \tag{70}$$

$$G_{12}^{(c)} = v_1 G_1 + v_2 G_2; \tag{71}$$

$$\upsilon_{13}^{(c)} = \upsilon_{31}^{(c)} = \frac{\left[\upsilon_1 v_1 \left(1-\upsilon_2\right) + \upsilon_2 v_2 \left(1-\upsilon_1\right)\right] \cdot \left[v_1 E_1 \left(1+\upsilon_2\right) + v_2 E_2 \left(1+\upsilon_1\right)\right]}{v_1 E_1 \left(1-\upsilon_2^2\right) + v_2 E_2 \left(1-\upsilon_1^2\right)}; \tag{72}$$

$$G_{13}^{(c)} = G_{23}^{(c)} = \frac{G_1 G_2}{G_1 v_2 + G_2 v_1}; \tag{73}$$

$$\frac{1}{E_3^{(c)}} = \frac{2\left[\upsilon_1 v_1 \left(1-\upsilon_2\right) + \upsilon_2 v_2 \left(1-\upsilon_1\right)\right]^2 \cdot \left[v_1 E_1 \left(1+\upsilon_2\right) + v_2 E_2 \left(1+\upsilon_1\right)\right]}{\left(1-\upsilon_1\right)\left(1-\upsilon_2\right)\left[v_1^2 E_1^2 \left(1-\upsilon_2^2\right) + v_2^2 E_2^2 \left(1-\upsilon_1^2\right) + 2 v_1 v_2 E_1 E_2 \left(1-\upsilon_1 \upsilon_2\right)\right]} +$$
$$+ \frac{v_1 \left(1+\upsilon_1\right)\left(1-2\upsilon_1\right)}{\left(1-\upsilon_1\right) E_1} + \frac{v_2 \left(1+\upsilon_2\right)\left(1-2\upsilon_2\right)}{\left(1-\upsilon_2\right) E_2}; \tag{74}$$

$$\begin{Bmatrix} \varepsilon_{11} \\ \varepsilon_{22} \\ \gamma_{12} \\ \gamma_{31} \\ \gamma_{32} \\ \varepsilon_{33} \end{Bmatrix} = \begin{bmatrix} \frac{1}{E_1^{(c)}} & -\frac{\upsilon_{12}^{(c)}}{E_1^{(c)}} & 0 & 0 & 0 & -\frac{\upsilon_{13}^{(c)}}{E_1} \\ -\frac{\upsilon_{21}^{(c)}}{E_2^{(c)}} & \frac{1}{E_2^{(c)}} & 0 & 0 & 0 & -\frac{\upsilon_{23}^{(c)}}{E_2} \\ 0 & 0 & \frac{1}{G_{12}^{(c)}} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{G_{13}^{(c)}} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{G_{23}^{(c)}} & 0 \\ -\frac{\upsilon_{13}^{(c)}}{E_1} & -\frac{\upsilon_{23}^{(c)}}{E_2} & 0 & 0 & 0 & \frac{1}{E_3^{(c)}} \end{bmatrix} \begin{Bmatrix} \sigma_{11} \\ \sigma_{22} \\ \sigma_{12} \\ \sigma_{31} \\ \sigma_{32} \\ \sigma_{33} \end{Bmatrix}; \tag{75}$$

We have to specify that the "(c)" index refers to the entire composite.

Finaly, we have, writing (75) in its usual form:

$$\begin{Bmatrix} \varepsilon_{11} \\ \varepsilon_{22} \\ \varepsilon_{33} \\ \gamma_{32} \\ \gamma_{31} \\ \gamma_{21} \end{Bmatrix} = \begin{bmatrix} \frac{1}{E_1^{(c)}} & -\frac{\upsilon_{12}^{(c)}}{E_1^{(c)}} & -\frac{\upsilon_{13}^{(c)}}{E_1} & 0 & 0 & 0 \\ -\frac{\upsilon_{21}^{(c)}}{E_2^{(c)}} & \frac{1}{E_2^{(c)}} & -\frac{\upsilon_{23}^{(c)}}{E_2} & 0 & 0 & 0 \\ -\frac{\upsilon_{13}^{(c)}}{E_1} & -\frac{\upsilon_{23}^{(c)}}{E_2} & \frac{1}{E_3^{(c)}} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{G_{23}^{(c)}} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{G_{13}^{(c)}} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{G_{12}^{(c)}} \end{bmatrix} \begin{Bmatrix} \sigma_{11} \\ \sigma_{22} \\ \sigma_{33} \\ \sigma_{32} \\ \sigma_{31} \\ \sigma_{21} \end{Bmatrix}; \qquad (76)$$

Conclusions

The conclusion is that in this case the composite material can be considered as being homogenous and orthotropic having the planes Ox_1x_2; Ox_1x_3; Ox_2x_3 as planes of elastic symmetry.

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