

## Conservation of Mass



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Recall the Reynolds Transport Theorem:

$$\frac{D}{Dt} \left( \int_{V_{\text{sys}}} \beta \rho dV \right) = \frac{d}{dt} \left( \int_{CV} \beta \rho dV \right) + \int_{CS} \beta (\rho \mathbf{u}_{\text{rel}} \cdot d\mathbf{A})$$