Imprimitive groups acting 2-transitively on blocks

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We try to classify permutation groups \((G, \Omega)\) endowed with a system of imprimitivity \(\overline{\Omega}\) subject to the following conditions, where \(N\) denotes the inertia group of \(\overline{\Omega}\):

\[ a) \quad N \text{ acts regularly on a block } \Delta \in \overline{\Omega}; \]
\[ b) \quad \text{Let } \Delta_1, \Delta_2 \in \overline{\Omega} \text{ be two distinct blocks and let } x_i, y_i \in \Delta_i, i = 1, 2. \quad \text{Then there is just one element } g \in N \text{ such that } g(x_i) = y_i \text{ for } i = 1, 2; \]
\[ c) \quad \text{The stabilizer in } G \text{ of a block } \Delta \text{ induces a sharply 2-transitive action on } \Delta; \]
\[ d) \quad \text{The factor group } G/N \text{ acts sharply 2-transitively on } \overline{\Omega}. \]

We have achieved a complete classification in the case where \(G\) is an algebraic group over an algebraically closed field \(k\), \(\Omega\) is an algebraic variety over \(k\) and \(G\) acts morphically on \(\Omega\).