Additive technology which reduces Acetaldehyde levels in PET packaging
Modelling
ColorMatrix can model the % reduction in AA versus the use level, thereby allowing a discussion with customers in the cost in use to achieve the target ppm level of AA to meet their organoleptic needs.

Reduced product risk
Maintaining product quality and brand reputation is vital. Triple A can help to ensure consistent and reliable control of AA levels and as a result is important in reducing brand risk for products packaged in PET.

Recycle friendly
Triple A facilitates the use of RPET and regrind in recycled applications and provides excellent recyclability. It is certified by the Petcore bottle-to-bottle and bottle-to-fibre protocols.

Universally compatible
As Triple A is universally compatible across a wide range of resins, it can also reduce handling complexity which can be a problem with alternative technologies. The additive has no impact on either color or clarity of containers and is easily combined with ColorMatrix color formulations.

TRIPLE A™

Technical description
Acetaldehyde (AA) forms as a result of thermal degradation during PET melt-processing and can increase as temperature, pressure and shear in processing rises. Once bottles are blown and filled, AA can migrate from container walls into its contents, giving an undesirable taste and odour to the packaged product. Exposure to light and other environmental conditions can also increase migration. ColorMatrix’s Triple A™ scavenging technology is engineered to minimize and control AA levels during PET processing and during the life of the product.

Applications
AA reduction is particularly important in mineral water container production.

Handling and usage rates
Triple A is a dispersion which can be supplied individually or in combination with other ColorMatrix colorant and additive technologies. ColorMatrix will recommend the best use rate depending on the expected level of AA following processing, storage conditions and the final desired AA level in the packaged product.

Regulatory information
Triple A is suitable for use under EU, Mercosur and FDA food contact legislation. Full regulatory details for your particular region are available on request. Universally compatible and easily combined with ColorMatrix color formulations.

Performance
Triple A lessens the impact of AA generation from increased heat and shear in high-throughput processing. The technology is also beneficial in controlling deviations of AA from old machines and tooling, offering scavenging performance of up to 80% AA reduction.

% Addition Rate Calculator

<table>
<thead>
<tr>
<th>Predicted AA Reduction (%)</th>
<th>Predicted Triple A Use Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>0.111</td>
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</tbody>
</table>

% Reduction Calculator

<table>
<thead>
<tr>
<th>Starting AA Level (ppm)</th>
<th>Desired AA Level (ppm)</th>
<th>Desired AA Reduction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8</td>
<td>4.5</td>
<td>22</td>
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Accurate AA control
Triple A can meet the most stringent AA level requirements, down to 1ppm in preforms. Accuracy can be controlled across all cavities while maintaining production efficiency.