

Q10A – Water footprinting

Candidate C evidence

SPACE FOR ANSWERS

(10A) Brewing requires a large amount of water. The first stage of brewing is mashing which is when water is added to barley grains and the are placed in a dark area or tank to allow them to ferment. This is done to soften the hard shell of the grain and make it useable. The second stage of water use during brewing is ~~fermentation~~ ^{mashing} which is when ground malted grains are added to water and ~~ferment~~ ~~are~~ ~~then~~ ~~used~~ ~~to~~ ~~release~~ ~~the~~ ~~sugars~~ ~~in~~ ~~the~~ ~~grain~~. The mash must be cooled which also uses water. Cold water is placed in a tank while the mash runs through a coiled pipe until it is cold. The cooling water must be constantly replaced so the cooling tank stays cold. After this the mash is fermented and fermented to make beer. Finally equipment must be washed down which uses about as much water as the brewing process itself. In paper making ~~the~~ wood chips are added to large amounts of water and boiled to break the ~~wood~~ wood down into fibres. From this point water is gradually removed as the pulp is rolled out into paper. Modern paper factories are capable of recycling up to 90% of water multiple times.

Candidate D evidence

Industry uses up vast amounts of water at every corner of production. MARKS

SPACE FOR ANSWERS (continued)

(a) brewing - alcohol brewed in liquid ~~with~~ yeast. ^{water} added to the alcohol afterwards. Water sprayed on machinery for cleaning and cooling. Machinery tubs cleaned out with more fresh water. Water used in refreshment of it's employees. Water used by the irrigation plants to grow the yeast. Water constantly added during the fermentation process.

b) paper making - water soaked up by the actual trees from which it is made. Water could be irrigated in tree growing areas. Tree leaves catch significant amounts of water ~~thereby~~ allowing them to be evaporated. Evapotranspiration. Water used ~~for~~ ⁱⁿ the preparation of sheets of paper. ^{machinery} ~~uses~~ ^{uses} up ground water from reserves. Equipment in need of cooling. Chemicals used will have been used in the ~~making~~ ^{creation} process.