

## 1

## YKK AP Inc.

	<b>Companies' approach</b>
① <b>Background and purpose of accounting</b>	<ul style="list-style-type: none"> <li>Understanding our CO<sub>2</sub> emissions across the entire supply chain is important in reducing the environmental load, and it allows us to implement effective measures.</li> <li>We expect we will be able to meet our clients' demands for information disclosure, and also to have our stakeholders better understand the company's environmental load reduction efforts.</li> </ul>
② <b>Utilization of accounting results</b>	<ul style="list-style-type: none"> <li>To become involved in reducing the environmental load by taking advantage of reduction opportunities in larger categories.</li> <li>The accounting results will be disclosed through our Social &amp; Environmental Report, to respond to our customers' demands for information disclosure.</li> <li>Appealing to our customers, the environmental load reduction effect ( amount of contributions of reducing CO<sub>2</sub> emissions ) due to using windows with high heat insulation capabilities.</li> </ul>
③ <b>Benefits of accounting</b>	<ul style="list-style-type: none"> <li>The emissions from the entire supply chain can be clarified and then effective measures can be taken.</li> <li>The transparency of our emissions will be improved, so that we will be able to respond to our customers' demands for information disclosure.</li> </ul>
④ <b>Internal system for accounting</b>	<ul style="list-style-type: none"> <li>Data is collected from the Procurement, Logistics and Accounting departments, and then calculated by the Environmental department.</li> <li>The amount of energy consumption and waste disposal is calculated by using are our internal database.</li> </ul>
⑤ <b>Efforts to reduce supply chain emissions</b>	<ul style="list-style-type: none"> <li>Because our emissions from raw materials account for about 70 percent of our overall CO<sub>2</sub> emissions across the entire supply chain, we are aggressively promoting a transition to raw materials with lower CO<sub>2</sub> emissions.</li> <li>With respect to logistics, we dispatching vehicles in a more efficient way, improving loading rates and attempting a modal shift.</li> <li>We are starting "green" procurement and the reduction of emissions resulting from waste.</li> </ul>
⑥ <b>Issues in supply chain emissions accounting</b>	<ul style="list-style-type: none"> <li>Improved accuracy for emission factor and activity data.</li> <li>Activity data and emission factors for overseas facilities need to be developed and improved.</li> </ul>

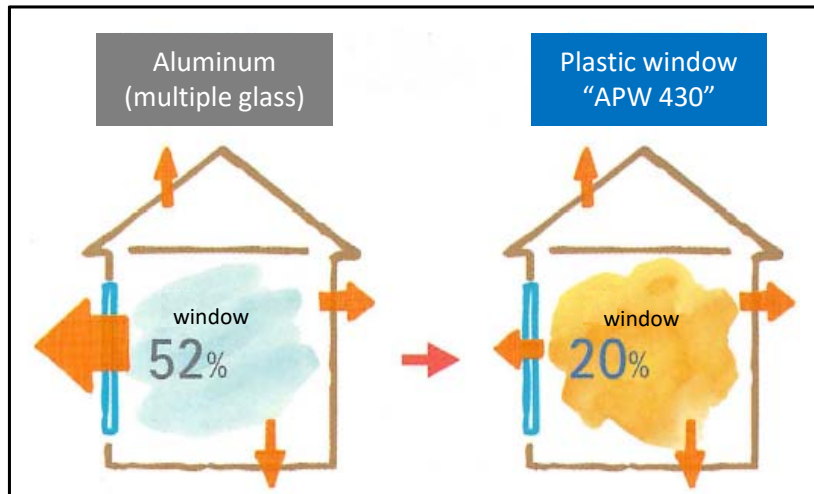
## 2

## YKK AP Inc.

## Companies' approach

## ⑦ Other

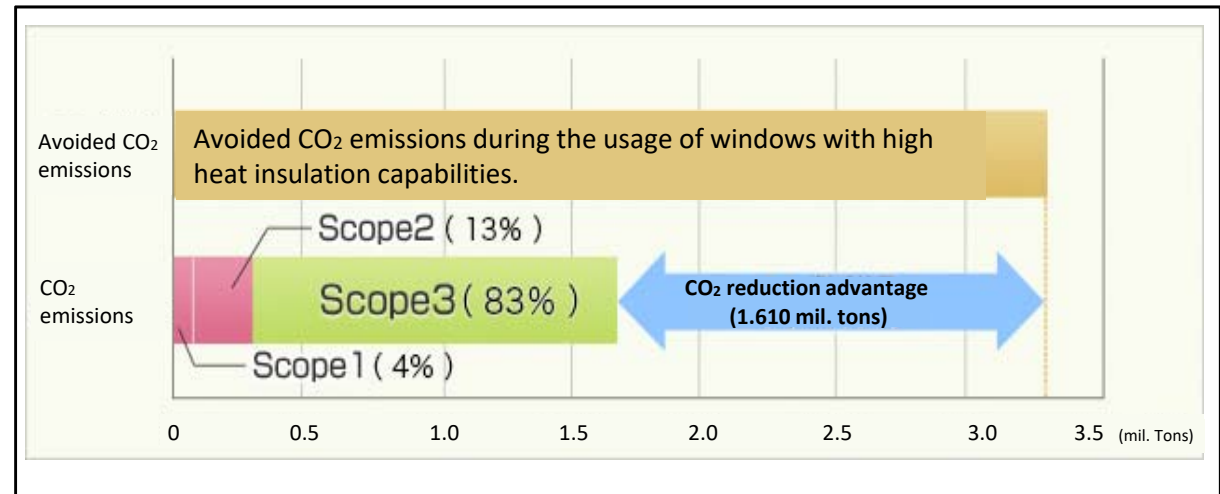
- Our leading window products itself consumes less energy during usage, but the loss of heat that goes out through the window is huge (as shown in Figure 1 below). By providing plastic windows with high heat insulation capabilities, it can contribute to a reduction in whole-house air conditioning energy usage, leading to a possible reduction of CO<sub>2</sub> emissions.
- The CO<sub>2</sub> emissions reductions of our sold housing windows (avoided CO<sub>2</sub> emissions) exceeded our domestic CO<sub>2</sub> emissions throughout the supply chain (including Scope 1&2). (as shown in Figure 2 below)
- We will enhance our energy saving capabilities for zero net energy in houses and offices, aim to create a healthy and relaxing living atmosphere, by developing products which are conscious to the entire lifecycle.



**Fig. 1: Comparison of loss ratio of heat escaping through windows (winter)**

[Calculation assumptions]

- Residential insulation specs: compliant with the Energy-Saving Standard of 1999
- House model: two-storied, total floor area of 120.08m<sup>2</sup>, and ratio of opening of 26.8% (for 4 to 8 regions), compliant with the calculation model in the “Description of methods for calculating energy consumption as a basis for decisions by owners of housing”
- Areas applied: Revised Energy-Saving Standard (of 2013), for 6 regions



**Fig. 2: Supply chain CO<sub>2</sub> emissions and avoided CO<sub>2</sub> emissions from the use of our housing windows**

[Calculation assumptions]

(These calculations are compliant with “Guidelines for Assessing the Contribution of Products to Avoided Greenhouse Gas Emissions”, The Institute of Life Cycle Assessment, Japan)

The effects of our well-insulating housing windows on residential air-conditioning energy usage (i.e. CO<sub>2</sub> reduction advantage) have been calculated as the “avoided CO<sub>2</sub> emissions.”

- Target for comparison: our recent windows (plastic) against those of 1990 (aluminum)
- Duration of use: 30 yrs (lifetime)
- Method: avoided emissions per unit of window x number of units shipped in FY2018

## 3

## YKK AP Inc.

Category	Accounting methods ※Accounting period : April 2018 - March 2019	
	Activity data	Emission factor
Category 1: Purchased goods and services	<ul style="list-style-type: none"> <li>Weight of procured raw materials and other materials</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*1, *2)</li> </ul>
Category 2: Capital goods	<ul style="list-style-type: none"> <li>Value of procured capital goods</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*2)</li> </ul>
Category 3: Fuel and energy related activities not included in Scope 1 or 2	<ul style="list-style-type: none"> <li>Electricity and fuel energy usage</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*1, *2)</li> </ul>
Category 4: Transportation and delivery (upstream)	<ul style="list-style-type: none"> <li>Calculated based on accounting methods for specified cargo owners in accounting, reporting and public disclosure systems</li> </ul>	<ul style="list-style-type: none"> <li>Mandatory Greenhouse Gas Accounting and Reporting System Emission Factors (*3)</li> </ul>
Category 5: Waste generated in operations	<ul style="list-style-type: none"> <li>Volume of waste disposed of, by type</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*2)</li> </ul>
Category 6: Business travel	<ul style="list-style-type: none"> <li>Transportation expenses paid, by mode of transportation</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*2)</li> </ul>
Category 7: Employee commuting	<ul style="list-style-type: none"> <li>Transportation expenses paid, by mode of transportation</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*2)</li> </ul>
Category 8: Leased assets (upstream)	<ul style="list-style-type: none"> <li>Not calculated because emissions from the operations of leased assets are included in Scope 1,2.</li> </ul>	
Category 9: Transportation and delivery (downstream)	<ul style="list-style-type: none"> <li>Freight transport tonne-km depending on the scenario settings</li> </ul>	<ul style="list-style-type: none"> <li>Mandatory Greenhouse Gas Accounting and Reporting System Emission Factors (*3)</li> </ul>
Category 10: Processing of sold products	<ul style="list-style-type: none"> <li>Shipping weight</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor per weight of products fabricated by our company</li> </ul>
Category 11: Use of sold products	<ul style="list-style-type: none"> <li>Not calculated because there are no direct emissions from windows and doors itself</li> </ul>	
Category 12: End-of-life treatment of sold products	<ul style="list-style-type: none"> <li>Shipping weight</li> </ul>	<ul style="list-style-type: none"> <li>Emission factor database (*2)</li> </ul>
Category 13: Leased assets (downstream)	<ul style="list-style-type: none"> <li>Not calculated because we did not rent to a another company</li> </ul>	
Category 14: Franchises	<ul style="list-style-type: none"> <li>Not calculated, because we are not the franchiser</li> </ul>	
Category 15: Investments	<ul style="list-style-type: none"> <li>Not calculated because we are neither an investment company nor a financial service providing company</li> </ul>	
Other	<ul style="list-style-type: none"> <li>We have not calculated any other emission factors</li> </ul>	

\*1 "Carbon Footprint Communications Program Basic Database, Ver. 1.01 (Domestic Data)"

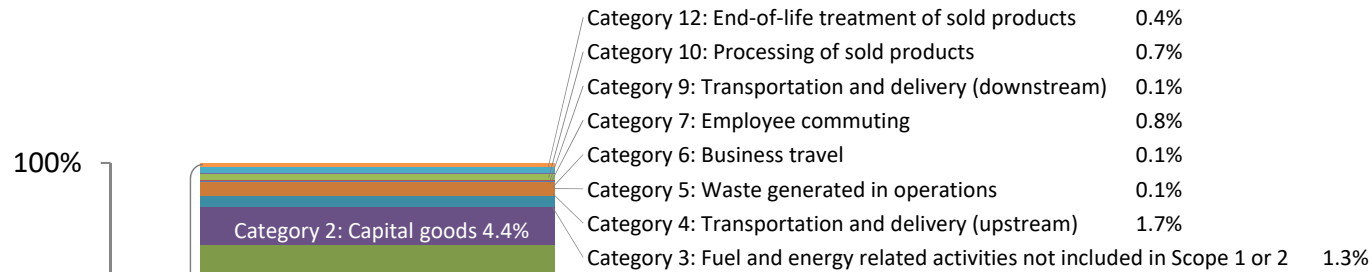
\*2 "Emission Factor Database on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain, Ver. 2.6"

\*3 Mandatory Greenhouse Gas Accounting and Reporting System List of Emission Factors (<http://ghg-santeikohyo.env.go.jp/>)

# 4

# YKK AP Inc.

## Supply chain emissions : Accounting results



The breakdown of the amount of domestic emissions for YKK AP in FY2018

