VERIFIED by SCS GLOBAL SERVICES™
ENVIRONMENTAL PRODUCT DECLARATION
BASED ON LCA

Environmental Product Declaration

Align™ Open Binder with Metal Shelf Credenza

Product Description

Align storage makes a strong aesthetic statement while offering you great design flexibility. Choose from a wide selection of credenzas, pedestals, and personal towers. Then dress up drawer or door fronts with a range of material choices. Behind the beauty you'll find storage products designed to handle the everyday demands of the productive office with double-wall drawer fronts, heavy-duty, European door hinges, and the extra durability of all-metal construction. With Align, you will find storage for all the kinds of work you do. Allsteel Align is certified Indoor Advantage™ Gold, BIFMA level® 2.

Functional Unit

A storage device with storage areas containing 0.15 m^3 of storage capacity, maintained for a 10 year period. The reference flow for the modeling system is one complete storage unit. Results are reported on the basis of 0.15 m^3. The Allsteel Align credenza passes the ANSI/ BIFMA X5.9 test, demonstrating a minimum expected lifetime of 10 years under normal use conditions.

Manufacturer

At Allsteel, we demystify the office planning process by helping our customers align their workplace strategy with their business strategy. With an accessible team and an adaptable portfolio of systems, seating, casegoods, tables, collaborative furniture and architectural walls, we address our customers' needs for today and tomorrow.

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EPD Program Operator

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Product Category Rule

BIFMA PCR for Storage: UNCPC 3812
June 10, 2013

EPD Number and Period of Validity

SCS-EPD-04297
December 20, 2016 - December 19, 2021

Disclaimers

Scope of Results Reported: The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.

Accuracy of Results: Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.

Comparability: The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. This EPD is augmented with information from draft LEO-SCS-002 standard, which is intended to promote comparison between EPDs. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

Allsteel®

Product Specifications

Align storage components provide function while adding clean, contemporary design appeal. They don't just store your files and personal belongings – they can also act as supplementary seating when your space turns into a collaboration area. They pull double-duty as workstation support pieces, fitting seamlessly with Allsteel systems furniture. Align credenzas, pedestals, lockers, and towers are built tough to meet today's workplace demands.

Align storage, assembled at the HNI Muscatine, Iowa facility, is primarily constructed of cold-rolled steel with a small amount of plastic. The models are coated with an epoxy heat-cured finish and are available in a variety of sizes and configurations. Align Storage passes the ANSI/BIFMA X5.9 tests, demonstrating a minimum expected lifetime of 10 years under specified conditions.

This EPD is based on the Align Open Binder with Metal Shelf Credenza and contains 25% Post-Consumer recycled content.

Table 1. Align credenza product information.

Model No.	Product Description	Storage Volume (m^3)	Number of Functional Units Fulfilled by Storage Device
YPCBZ223018O	22"x30"x18" Open Binder w/ Metal Shelf	0.20	1.3
YPCBX223618O	22"x36"x18" Open Binder w/ Metal Shelf	0.23	1.6

Materials Composition

Table 2. Material composition of the Align Open Binder with Metal Shelf Credenza. Results are shown in kg, per functional unit, and as a percent of total.

Material Classification	Material Resource	Model O 30"	Model O 36"
Steel	Virgin non-renewable; Recycled	18 kg (100%)	16 kg (100%)

Table 3. Packaging material composition of Align Open Binder with Metal Shelf Credenza. Results are shown on a mass basis, and as a percent of total.

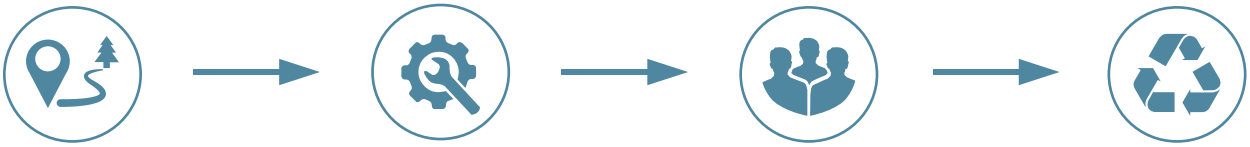
Packaging Material	Model O 30" (kg)	% of Total[1]	Model O 36" (kg)	% of Total[1]
Plastic (EPS/LDPE)	0.077	3.6%	0.075	3.8%
Corrugated Board	2.1	96%	1.9	96%
Total Packaging[1]	**2.2**	**100%**	**2.0**	**100%**

[1]Values may not sum to exact totals due to rounding.

Life Cycle Assessment Stages

Figure 1 below is a representation of the life cycle of Align. The system boundary is cradle-to-grave and includes resource extraction and processing, product manufacture and assembly, distribution/transport, use and maintenance, and end-of-life.

Figure 1. Life cycle diagram for Allsteel Stride benching.



Materials

This stage includes raw materials extraction and transformation, as well as transport of parts and semi-manufactured parts to the production site in Muscatine, Iowa.

Production

Some raw materials are transformed and finished. All manufactured and supplied parts are assembled. Final products are packaged for shipment.

Delivery, Installation & Use

Transport from Muscatine to the final customer. For this EPD, transportation to major US markets were considered. Use, maintenance, and regular cleaning of the product over the 10 year period was included. Allsteel recommends cleaning with low-impact materials and our products typically require minimal maintenance during their warranted lifetime.

End of Life

Allsteel designs its products to be easily disassembled and recycled. End of life impacts were considered, including transport to waste treatment and recycling facilities. Emissions considered include disposal of product in a landfill or from incineration.

Life Cycle Inventory

The life cycle inventory (LCI) flows by life cycle stage for Align are shown in Tables 4-8.

Table 4. Average air emissions by life cycle stage for the Align Open Binder with Metal Shelf Credenza. Results are shown in kg per functional unit.

Parameter	Unit	Total	Material Acquisition	Production	Delivery, Installation & Use	Disposal
Sulfur Dioxide (SO_2)	kg	0.11	8.0×10^{-2}	3.1×10^{-2}	1.2×10^{-3}	1.3×10^{-4}
Nitrogen Oxides (NO_X)	kg	0.14	0.10	3.3×10^{-2}	5.9×10^{-3}	1.2×10^{-3}
Carbon Dioxide (CO_2)	kg	21	17	3.4	0.71	8.2×10^{-2}
Methane (CH_4)	kg	7.6×10^{-2}	5.7×10^{-2}	1.8×10^{-2}	9.7×10^{-4}	1.8×10^{-4}
Nitrous Oxide (N_20)	kg	6.2×10^{-2}	4.0×10^{-2}	1.7×10^{-2}	4.7×10^{-3}	9.7×10^{-4}
Carbon Monoxide (CO)	kg	20	16	3.3	0.67	7.7×10^{-2}

Table 5. Average water emissions by life cycle stage for the Align Open Binder with Metal Shelf Credenza. Results are shown in kg per functional unit.

Parameter	Unit	Total	Material Acquisition	Production	Delivery, Installation & Use	Disposal
Phosphates	kg	1.0×10^{-4}	1.9×10^{-5}	8.1×10^{-5}	8.0×10^{-7}	1.9×10^{-8}
Nitrates	kg	1.4×10^{-2}	7.8×10^{-3}	6.2×10^{-3}	2.2×10^{-4}	4.7×10^{-6}
Dioxin	kg	4.6×10^{-4}	3.6×10^{-4}	8.9×10^{-5}	1.9×10^{-6}	1.0×10^{-5}
Arsenic	kg	1.7×10^{-4}	8.8×10^{-5}	7.6×10^{-5}	6.0×10^{-7}	8.3×10^{-8}
Lead	kg	6.2×10^{-4}	3.4×10^{-5}	7.9×10^{-5}	4.9×10^{-7}	5.0×10^{-4}
Mercury	kg	5.8×10^{-4}	3.4×10^{-5}	7.0×10^{-5}	4.5×10^{-7}	4.7×10^{-4}
Cadmium	kg	1.6×10^{-4}	1.0×10^{-4}	5.1×10^{-5}	3.0×10^{-7}	4.1×10^{-6}
Chromium	kg	5.4×10^{-4}	4.2×10^{-4}	1.1×10^{-4}	2.1×10^{-6}	1.5×10^{-5}

Life Cycle Inventory (continued)

Table 6. Average water usage by life cycle stage for the Align Open Binder with Metal Shelf Credenza. Results are shown in kg per functional unit.

Parameter	Unit	Total	Material Acquisition	Production	Delivery, Installation & Use	Disposal
Water Consumption	kg	1,100	480	620	8.1	5.4

Table 7. Average energy usage by life cycle stage for the Align Open Binder with Metal Shelf Credenza. Results are shown in MJ per functional unit.

Parameter	Unit	Total	Material Acquisition	Production	Delivery, Installation & Use	Disposal
Fossil Fuels	MJ	700	480	200	20	3.5
Nuclear	MJ	80	40	40	9.2×10^{-2}	0.11
Renewable Energy	MJ	100	32	70	1.2	2.5×10^{-2}
Miscellaneous Fuels	MJ	3.9×10^{-2}	2.0×10^{-2}	1.8×10^{-2}	4.9×10^{-4}	- -

Table 8. Average waste type by life cycle stage for the Align Open Binder with Metal Shelf Credenza. Results are shown in kg per functional unit.

Parameter	Unit	Total	Material Acquisition	Production	Delivery, Installation & Use	Disposal
Incineration w/ Energy Recovery	kg	1.5×10^{-2}	8.4×10^{-3}	6.4×10^{-3}	1.9×10^{-4}	- -
Incineration w/o Energy Recovery	kg	1.2	5.3×10^{-2}	1.1	2.1×10^{-4}	- -
Recycling	kg	6.2	- -	1.5	- -	4.7
Hazardous	kg	7.5×10^{-3}	3.7×10^{-3}	3.8×10^{-3}	2.2×10^{-6}	3.0×10^{-6}
Non-Hazardous (Landfill)	kg	27	15	2.4	6.7×10^{-3}	10

Table 9. Translation of LCA results to familiar activities for select aggregated inventory results for Align Open Binder with Metal Shelf Credenza.

Category Indicator	Life Cycle Impact Assessment for 0.15 m^3 of storage volume, maintained for 10-years	Life Cycle Impact Assessment for 1 storage unit, maintained for 10-years	Basis of Calculation	0.15 m^3 of storage volume, maintained for 10-years	1 storage unit, maintained for 10-years (1.45 units/FU)
Net Water Consumption	1,100 kg	1,600 kg	Number of cycles run in a dishwasher[1]	25	36
Primary Energy Demand	890 MJ	1,300 MJ	Number of days operating a refrigerator[2]	47	68

[1]The net water use estimate is based on Energy Star-rated dishwashers and also considers the upstream water required to generate electricity to run the dishwasher. https://www.energystar.gov/index.cfm?c=dishwash.pr_crit_dishwashers

[2]The primary energy demand estimate is based on the energy consumption for Energy Star refrigerators, using a US average electricity supply mix, and also considers the upstream energy demand for electricity generation in US. https://www.energystar.gov/index.cfm?fuseaction=refrig.calculator

Life Cycle Impact Assessment

Impact category indicators are calculated using the TRACI 2.1 characterization methods, including acidification potential, eutrophication potential, photochemical ozone creation potential, ozone depletion potential, and global warming potential based on IPCC 2013.

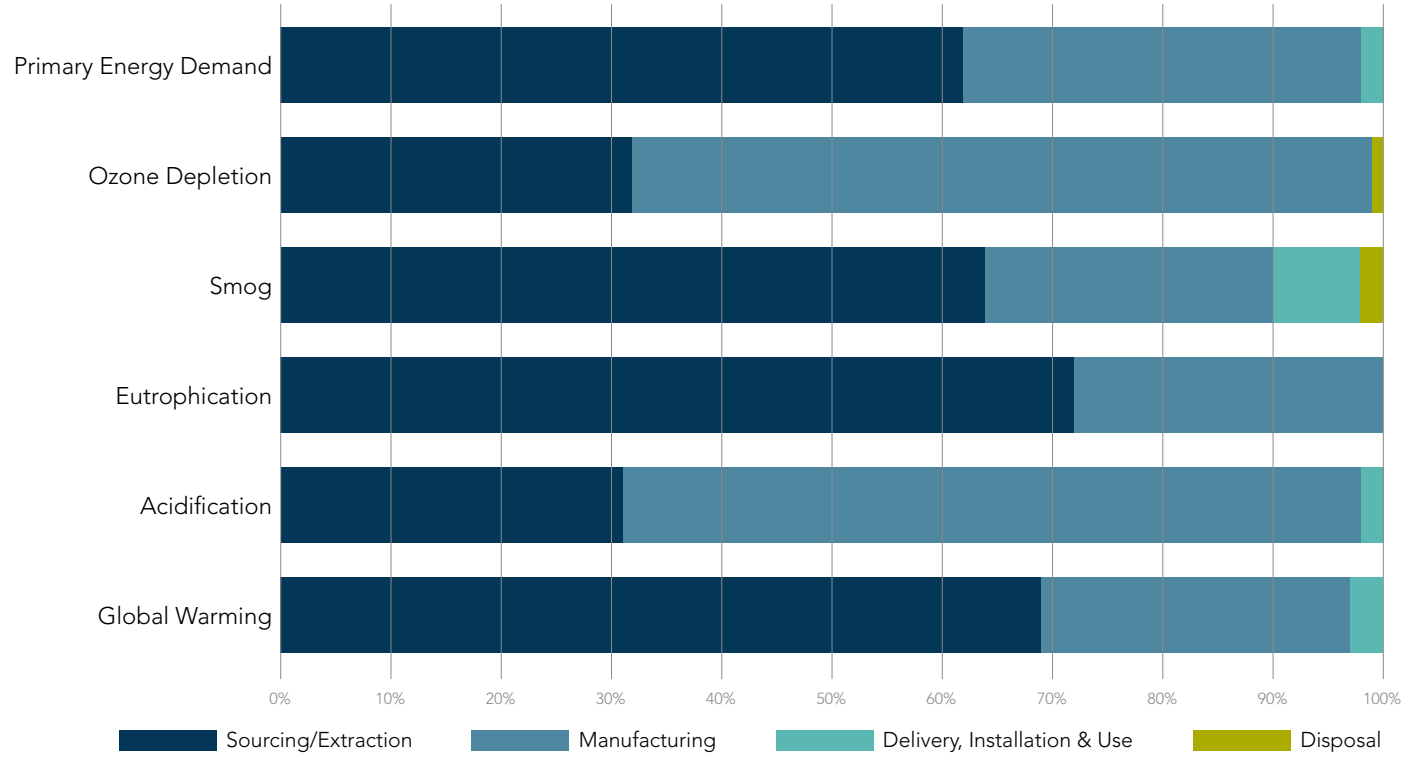
Table 10. Average life cycle impact assessment results for Align Open Binder with Metal Shelf Credenza. Results are shown per functional unit (0.15 m^3 storage capacity).

Impact Category	Unit	Material Acquisition	Production	Distribution, Installation & Use	Disposal	Total
Global Warming Potential	kg CO_2 eq	36	14	1.5	0.17	52
Acidification Potential	kg SO_2 eq	0.15	0.32	7.6×10^{-3}	1.6×10^{-3}	0.48
Eutrophication Potential	kg N eq	0.18	7.0×10^{-2}	7.2×10^{-4}	4.1×10^{-4}	0.25
Photochemical Ozone Creation Potential	kg O_3 eq	2.0	0.84	0.24	5.0×10^{-2}	3.2
Ozone Depletion Potential	kg CFC-11 eq	1.3×10^{-6}	2.6×10^{-6}	3.2×10^{-9}	3.9×10^{-8}	3.9×10^{-6}

On assessing the percentage contribution by life cycle phase, it is evident that the raw material extraction and processing phase is generally the most dominant phase with significant environmental impacts across all the category indicators except Ozone Depletion Potential and Acidification Potential – the manufacturing phase is the largest contributor to these indicators.

Figure 1. Contribution analysis graph representing % contribution to each impact category indicator by life cycle phase.

Life Cycle Impacts of Align Credenza – Model O



Life Cycle Impact Assessment (continued)

Additional life cycle impact results are reported in Table 11 below as optional parameters of concern. These impacts are calculated using the LEO-SCS-002 framework, which complements the ISO 14044 standard for LCA with additional guidance on conducting a more comprehensive impact assessment.

Table 11.Life cycle impact assessment results for the Align Open Binder with Metal Shelf Credenza, according to LEO-SCS-002 standard.

Impact Category (LEO-SCS-002 Parameters)	Unit	Life Cycle Impact Results for 0.15m³ of Storage Capacity	Life Cycle Impact Results for 1 Storage Unit
Global Climate Change	kg CO_2 eq	56	81
Arctic Climate Change	kg CO_2 eq	100	140
Ocean Acidification	kg H_2CO_3 eq	82	120
Energy Resource Depletion	MJ eq	230	340

Select impact category indicators are equated on the basis of the number of miles driven in a typical passenger vehicle, or number of days of refrigerator operation, to help consumers make more informed choices regarding purchase of commercial furniture.

Table 12. Translation of LCA results to familiar activities for select aggregated inventory results for Align Open Binder with Metal Shelf Credenza.

Category Indicator	Life Cycle Impact Assessment results for 0.15 m³ of storage volume, maintained for 10-years	Life Cycle Impact Assessment results for 1 unit of storage, maintained for 10-years	Basis of Calculation	0.15 m³ of storage, maintained for 10-years	1 storage unit (average), maintained for 10-years
Global Warming Potential (IPCC, 100 year time horizon)	52 kg CO_2 eq	75 kg CO_2 eq	Number of miles driven in a typical passenger vehicle[3]	120	170
Global Climate Change (LEO-SCS-002)	56 kg CO_2 eq	81 kg CO_2 eq	Number of miles driven in a typical passenger vehicle[3]	130	180
Energy Resource Depletion (LEO-SCS-002)	230 MJ eq	340 MJ eq	Number of days operating a refrigerator[4]	12	18

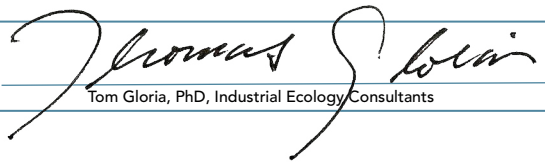
[3]Average vehicle miles traveled are estimated using average US fuel economies for passenger vehicles and light trucks and the amount of carbon dioxide emitted per gallon of motor gasoline burned. https://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and-references

[4]The Energy Resource Depletion estimate is based on the energy consumption for Energy Star refrigerators, using a US average electricity supply mix, and also considers the upstream energy demand for electricity generation in US. https://www.energystar.gov/index.cfm?fuseaction=refrig.calculator

Additional Environmental Information

Allsteel makes it a priority to design product and implement processes that reduce our collective impact on the environment. Allsteel is proud to support sustainable initiatives in the building industry as a member of the U.S. Green Building Council (USGBC).

Align storage is level® 2 certified to the ANSI/BIFMA e3 Furniture Sustainability Standard and SCS Indoor Advantage Indoor Advantage™ Gold certified for indoor air quality. Align has the ability to contribute to several credits in the LEED® green building program and the WELL Building Standard®.

Approved December 20, 2016 | December 19, 2021	
PCR Review was conducted by	Thomas P. Gloria, PhD, Industrial Ecology Consultants t.gloria@industrial-ecology.com
Independent verification of the declaration and data, according to ISO 14025-2006	☐ Internal ☑ External
Third party verifier	 Tom Gloria, PhD, Industrial Ecology Consultants

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Allsteel supports green initiatives in the contract furniture industry as a member of the U.S. Green Building Council. Align is an SCS Indoor Advantage™ Gold and level® 2 certified product.