

SESSION 2022

CONCOURS GÉNÉRAL DES MÉTIERS
PLASTIQUES ET COMPOSITES

Dossier Ressources

Ce dossier se compose de 15 pages.

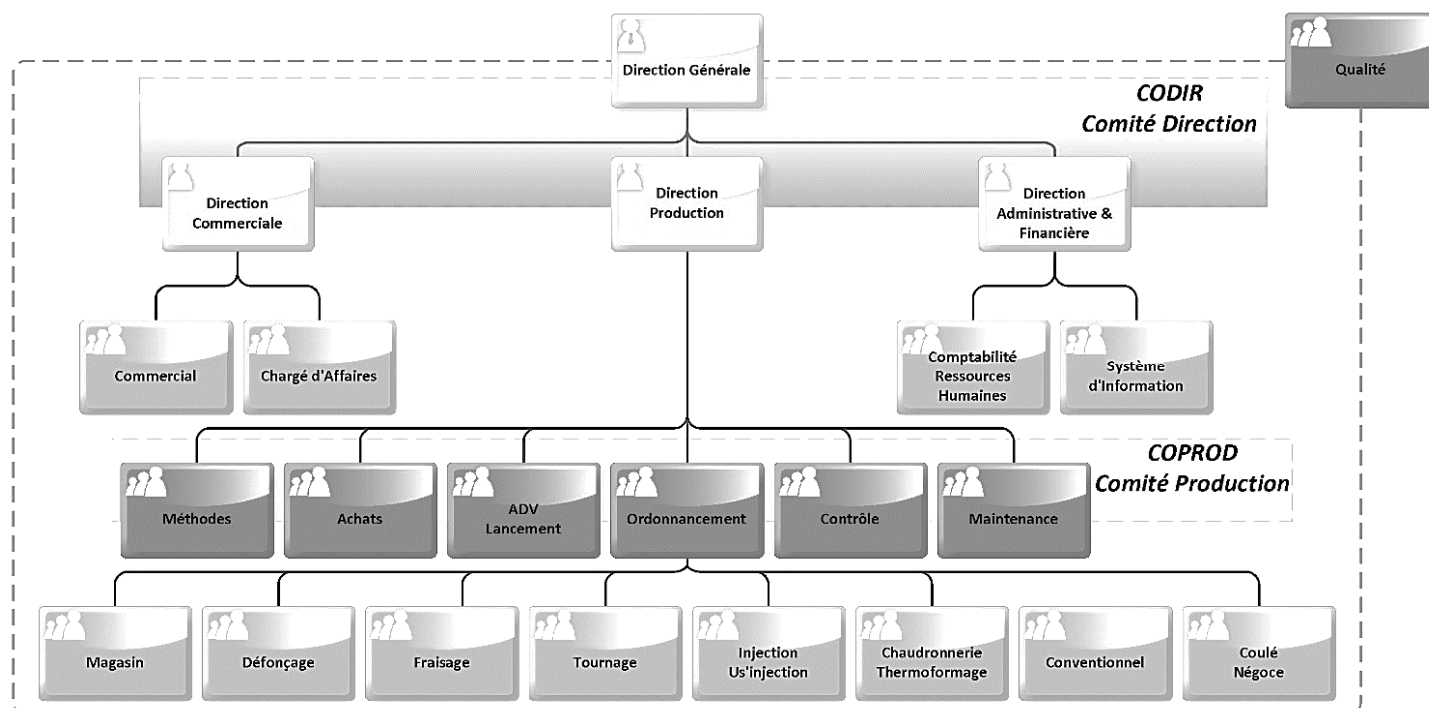
Concours Général des Métiers Plastiques et Composites	DOSSIER RESSOURCES	SESSION 2022
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L'entreprise :

Organigramme :



Composition des équipes de production / Répartition du temps de travail.

Dans l'atelier il y a 4 équipes de production composées comme suit :

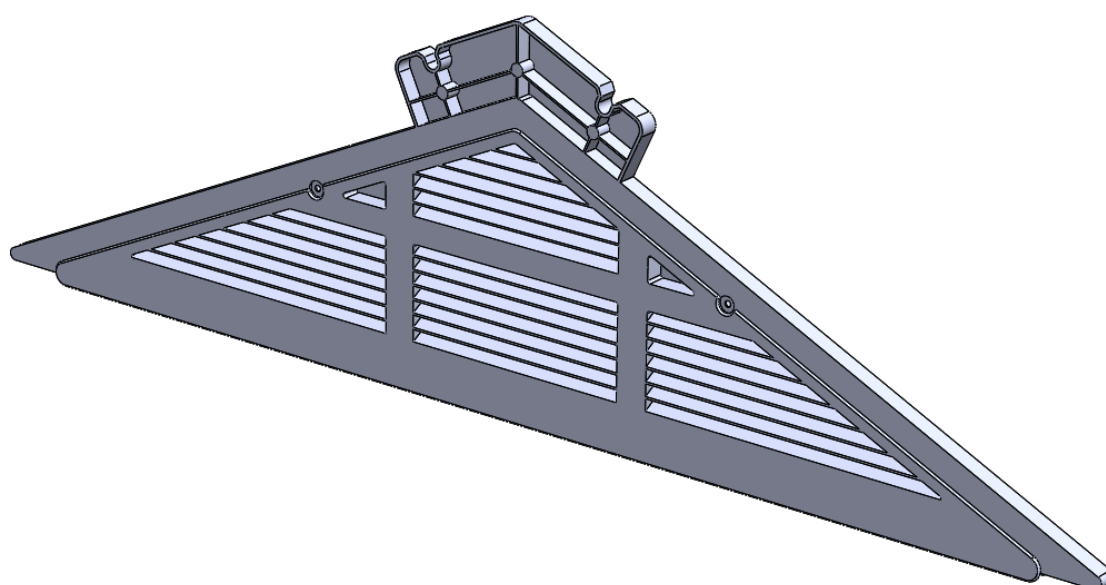
- Un metteur au point
- Un régleur
- Un monteur
- Trois opérateurs

En période **d'activité normale** le travail posté est réparti en 4/8.

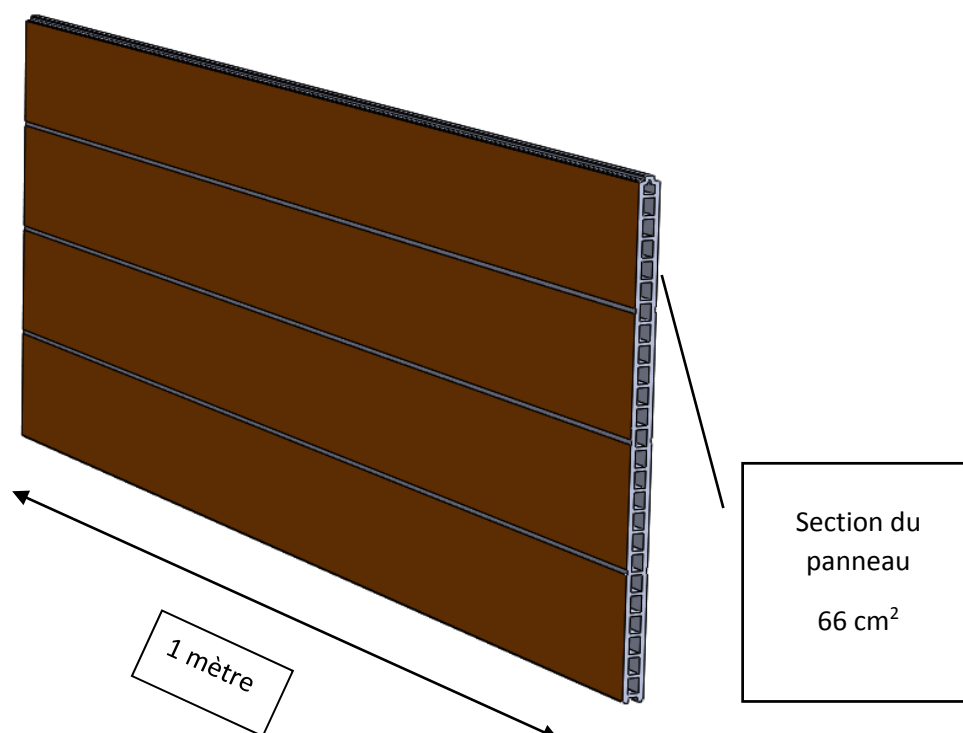
	Jours 1 et 2	Jours 3 et 4	Jours 5 et 6	Jours 7 et 8
Équipe A	Matin	Après-midi	Nuit	Repos
Équipe B	Après-midi	Nuit	Repos	Matin
Équipe C	Nuit	Repos	Matin	Après-midi
Équipe D	Repos	Matin	Après-midi	Nuit

Les composants du cabanon de jardin :

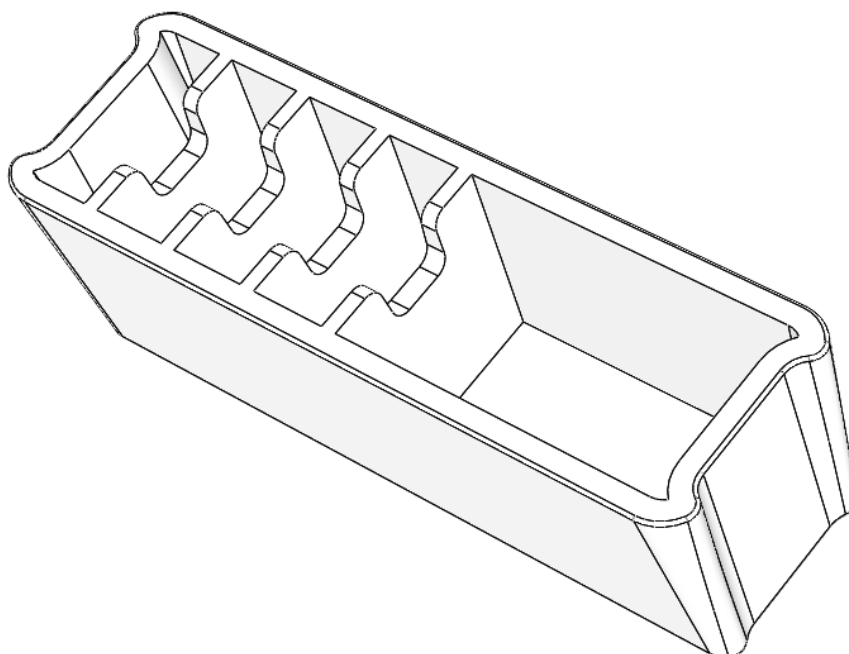
Pièce 1 : Arbalétrier (Injection)



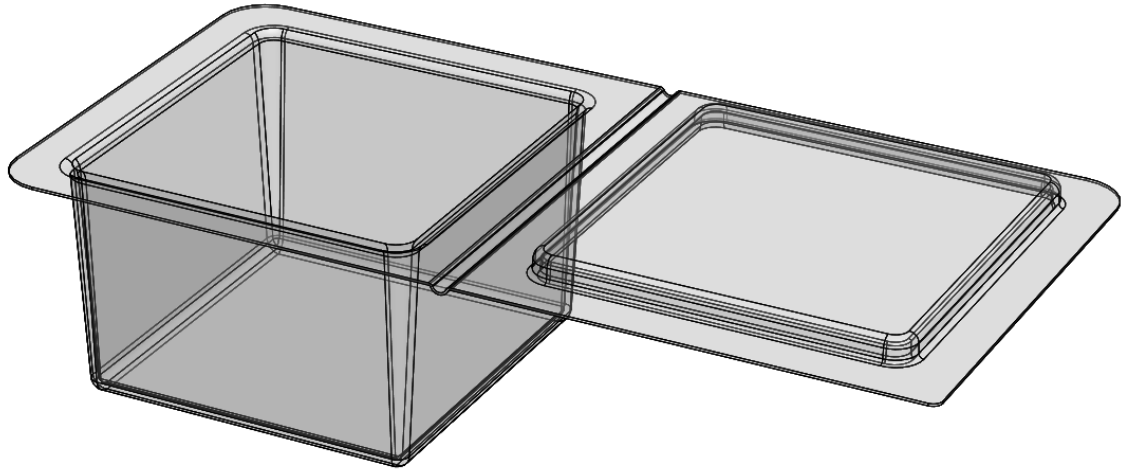
Pièce 2 : Panneau (Extrusion)



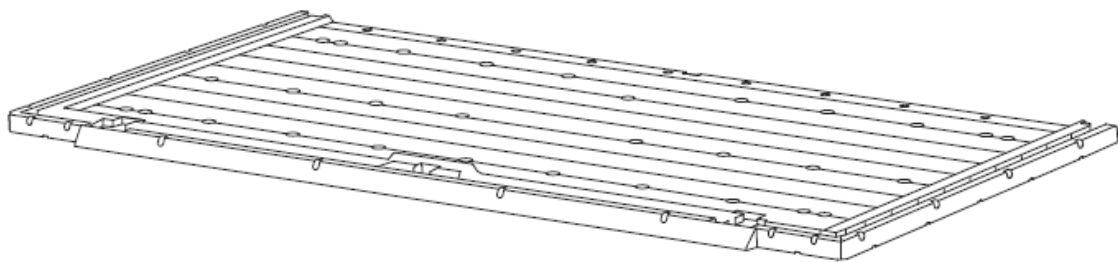
Pièce 3 : Intercalaire / Calage (Expansion)



Pièces 4 : Boîte visserie (Thermoformage)

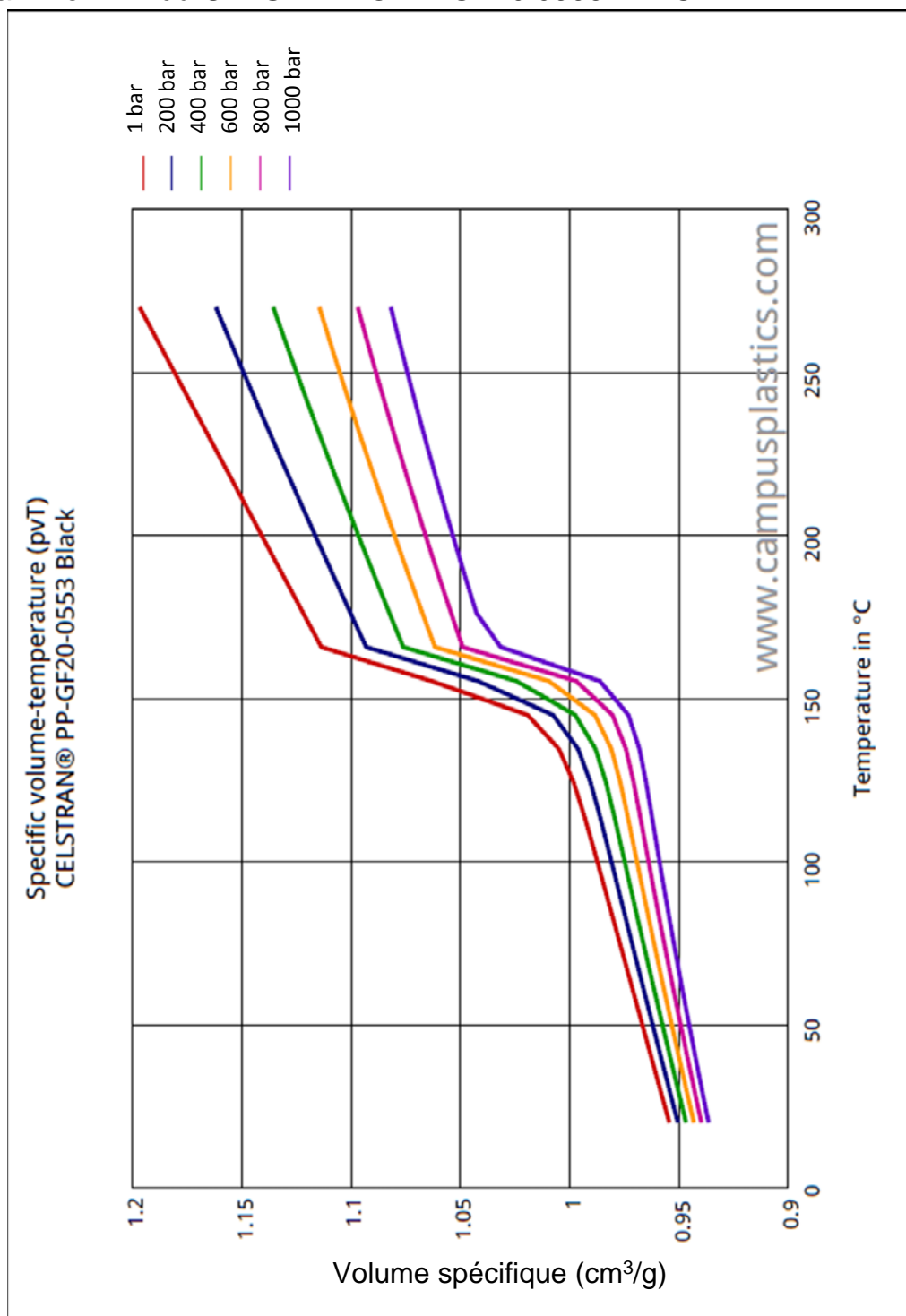


Pièce 5 : Dalle de sol. (Drapage)



Les matières d'œuvre

Diagramme PVT du CELSTRAN® PP GF20 0553 BLACK



Pour information :

- 10 Mpa = 100 bars

$$\text{Masse volumique (g/cm}^3\text{)} = 1/\text{Volume spécifique (m}^3\text{/kg)}$$

Le laboratoire

HDT Definition (English)

The heat distortion temperature is determined by the following test procedure outlined in ASTM D648. The test specimen is loaded in three-point bending in the edgewise direction. The outer fiber stress used for testing is either 0.455 MPa or 1.82 MPa, and the temperature is increased at 2 °C/min until the specimen deflects 0.25 mm. This is similar to the test procedure defined in the **ISO 75 standard**.

Limitations that are associated with the determination of the HDT is that the sample is not thermally isotropic and, in thick samples in particular, will contain a temperature gradient. The HDT of a particular material can also be very sensitive to stress experienced by the component which is dependent on the component's dimensions. The selected deflection of 0.25 mm (which is 0.2% additional strain) is selected arbitrarily and has no particular physical significance.

HDT Application in injection molding (English)

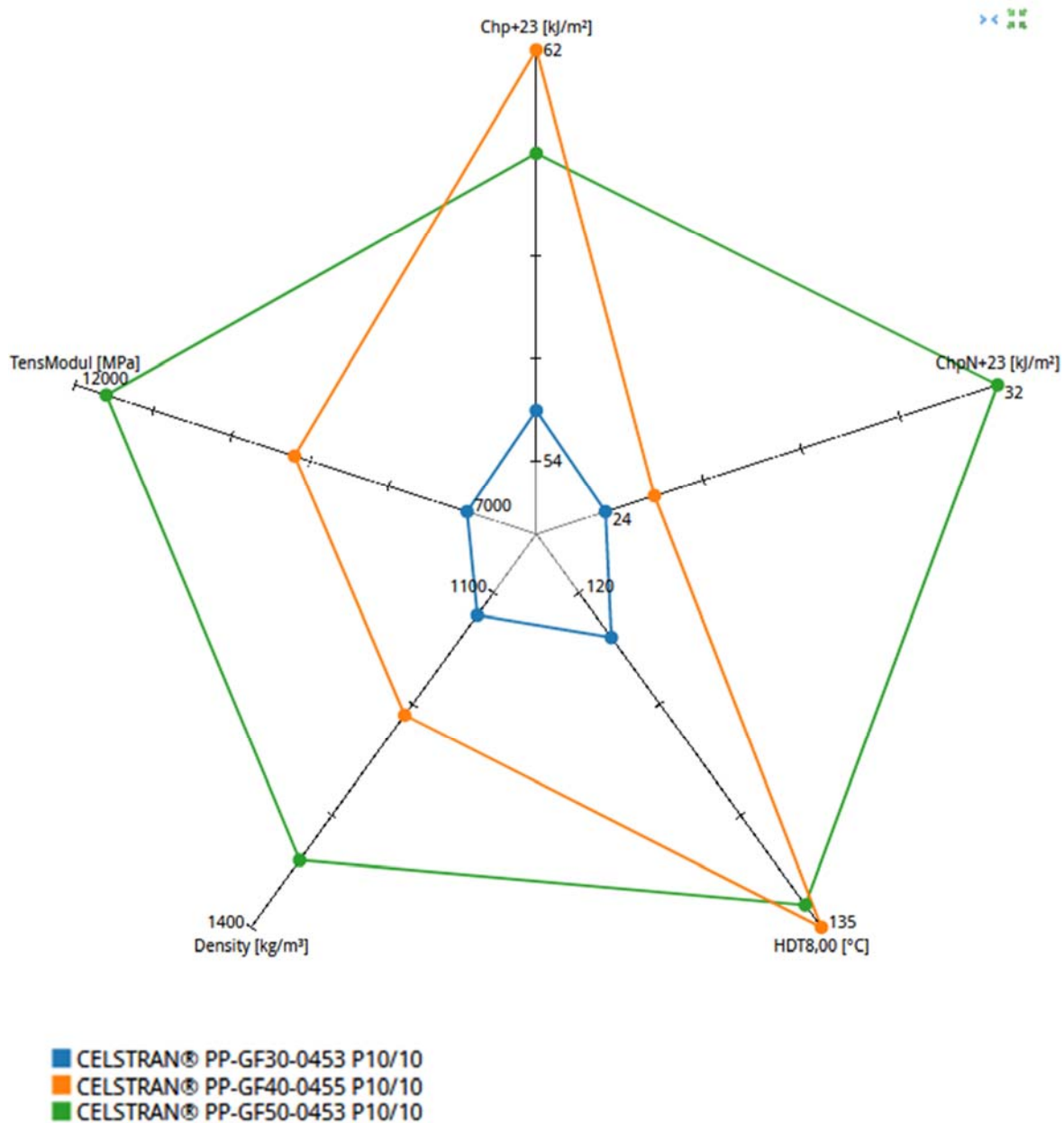
An injection molded plastic part is considered "safe" to remove from its mold once it is near or below the HDT. This means that part deformation will be held within acceptable limits after removal. The molding of plastics by necessity occurs at high temperatures (routinely 200 °C or higher) due to the low viscosity of plastics in fluid form (this issue can be addressed to some extent by the addition of plasticizers to the melt, which is a secondary function of a plasticizer). Once plastic is in the mold, it must be cooled to a temperature to which little or no dimensional change will occur after removal. In general, plastics do not conduct heat well and so will take quite a while to cool to room temperature. One way to mitigate this is to use a cold mold (thereby increasing heat loss from the part). Even so, the cooling of the part to room temperature can limit the mass production of parts.

Choosing a resin with a higher heat deflection temperature (and therefore closer to melting temperature) can allow manufacturers **to achieve a much faster molding process than they would otherwise** while maintaining dimensional changes within certain limits.

Tableau des additifs :

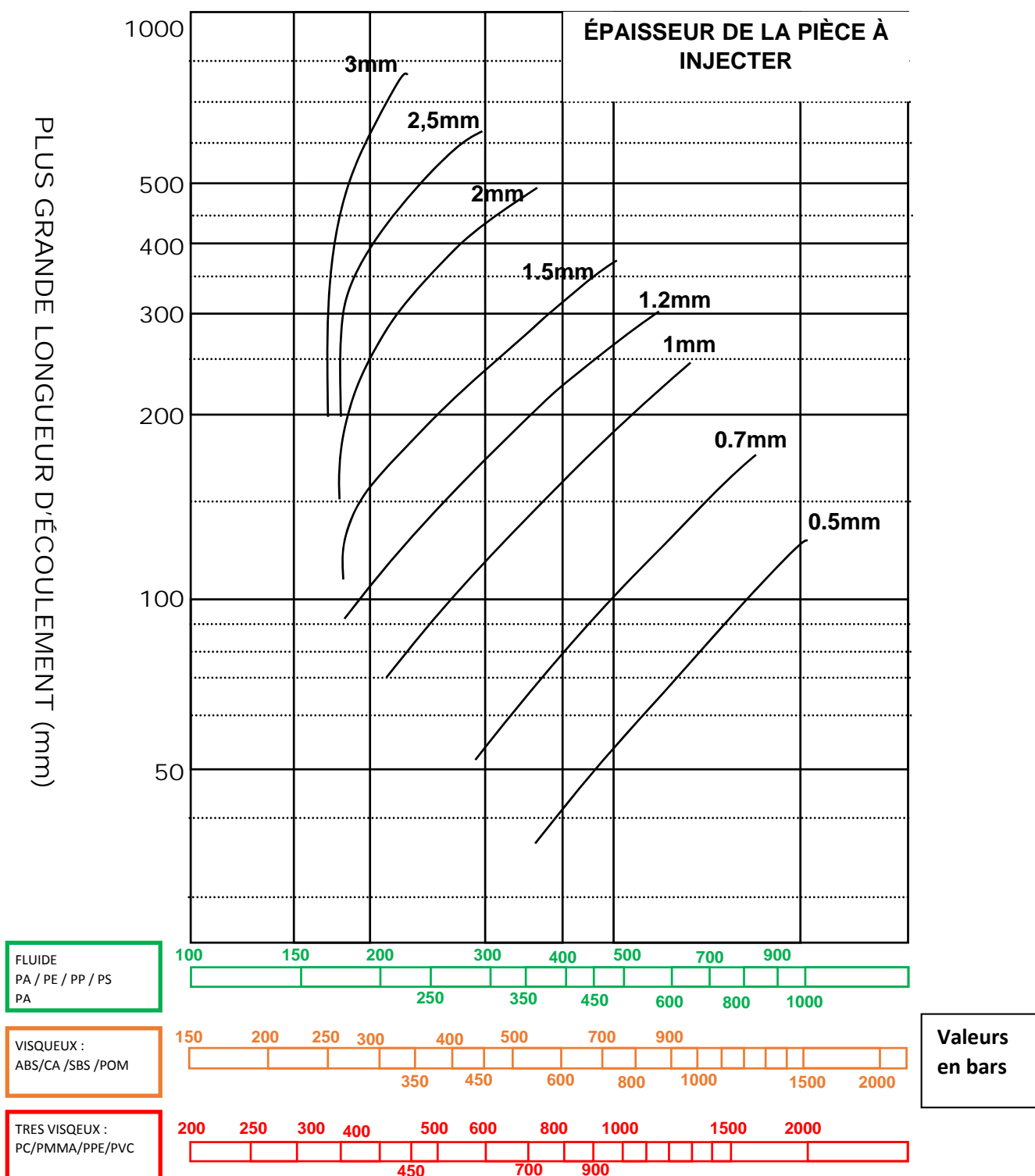
Trade name	Technical data
Irgaguard® F 3000	2-Thiazol-4-yl-1H-benzimidazole. Used as a broad-spectrum fungicide . Key areas of applications are building & construction (artificial wood, plastic lumber, wood filled plastics, decking, mobile homes, Astro-turf, air conditioning), carpet & textile (awnings, carpets, cushions, ticking, mattresses), crates and pallets. Prevents growth of fungi. Provides long lasting fungicidal efficacy.
Uvasorb® HA-88FD	Uvasorb® HA-88FD is hindered amine based additive. Acts as an UV light stabilizer . Provides long term thermal stabilization to polymers along with UV light stability. Also offers low volatility and minimal migration rate, high extraction and gas fading resistance, high thermal stability preventing decomposition as well as volatilization even at elevated temperatures and high antioxidant activity. Exhibits excellent synergism with a broad range of additives used in polymer formulation.
Queo™ 0203	Queo™ 0203 by Borealis is an ethylene based octene-1 elastomer produced in a solution polymerisation process using a metallocene catalyst. Acts as an impact modifier for polypropylene (PP). Provides outstanding toughness, flexibility and high clarity. Exhibits low temperature impact strength, outstanding puncture resistance and low temperature hot tack properties. It contains processing stabilizers. Shows versatile blending with other polyolefins in film, extrusion and molding applications
Noroplast® 8000	Noroplast® 8000 by Ceca (Arkema Group) is N,N-bis (2 hydroxyethyl) tallow amine (tallow amine with 2 moles of ethylene oxide). Acts as a antistatic agent . Noroplast® 8000 is used for polyolefinic polymers of polypropylene type, high density HD polyethylene (low pressure) and low density LD (high pressure).

Graphique polaire comparatif CELSTRAN® PP GF



Abaque Injection

ABaque D'ESTIMATION DE LA PRESSION DANS L'EMPREINTE



Sécurité

Situation 1 :

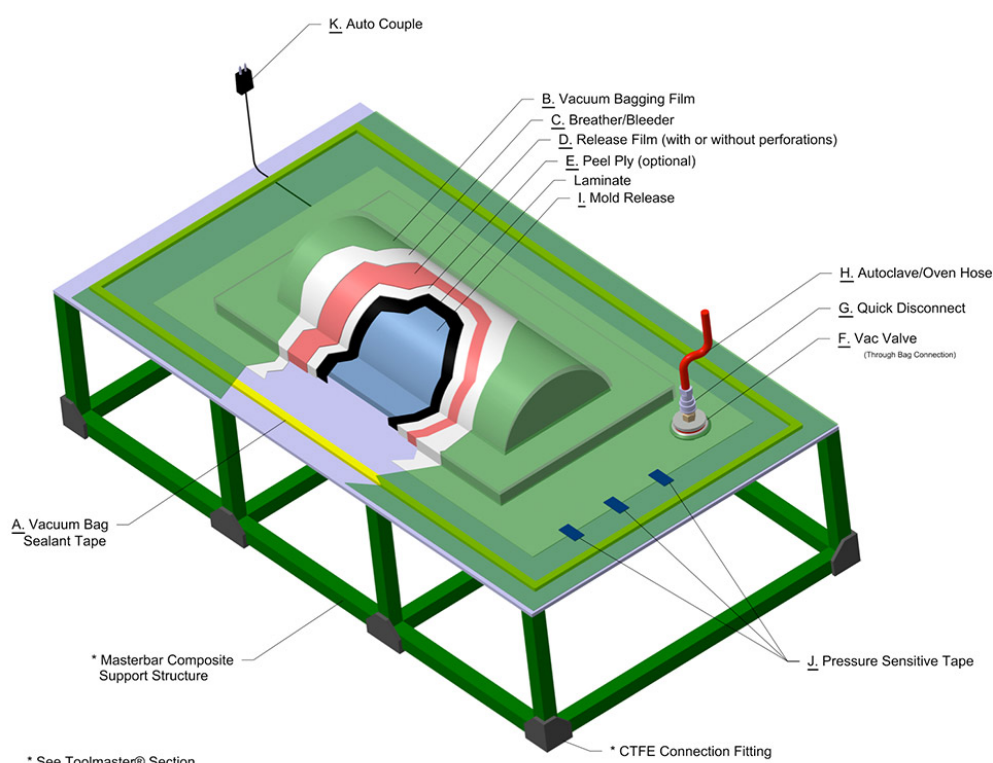


Situation 2 :



Technologie :

Drapage process



LA MÉTHODE 5S



Plan de maintenance préventive presse d'injection

h		Date	Signature
Mise en service			
31=Unité de fermeture: lubrifiez la plaque d'éjection	1000		
	2000		
	3000		
	4000		
	5000		
	6000		
	7000		
	8000		
	9000		
	10000		
	11000		
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	24000		
	25000		
	26000		
	27000		
	28000		
	29000		
	30000		
	31000		
	32000		
33=Unité de fermeture: lubrifiez les patins à rouleaux du plateau de bridage du moule			
34=Unité de fermeture: lubrifiez le plateau de bridage du moule			
35=Unité de fermeture: lubrifiez les patins à rouleaux du plateau de bridage du moule			
40=Dispositifs de protection: nettoyez et lubrifiez les guidages			
55=Unité d'injection: contrôle visuel de l'ensemble de plastification			
49=Unité d'injection: nettoyez et lubrifiez les colonnes			
17=Bât de la machine: remplacez l'élément filtrant			
19=Bât de la machine: évacuez l'eau de condensation de l'installation pneumatique			
41=Dispositifs de protection: contrôlez			

1 CARRÉ = FRÉQUENCE DE 1000 HEURES

1 CARRÉ GRISÉ = MAINTENANCE PRÉVENTIVE À RÉALISER

