Algorithm (also see attached image):

I load all glycans in a job list. For each glycan in the list: I wait for 1 second. Submit the glycan to GLYCAM. If this was successful, I add the job to an internal queue. This queue has a maximum (default: 5 jobs). I keep adding to the queue till the maximum is reached. Between each submission I wait for 1 second. After the queue is filled, I keep waiting on the queue (next paragraph) till a spot in the queue opens. If a queue spot is open, I go back to submitting jobs till the queue is full again.

When waiting on the queue I do the following: For each job in the queue, I check the status of the job on GLYCAM. If this request fails (HTTP Code >= 400) I wait for 5 seconds. Every job has a fixed number of allowed retries (default 3). I keep retrying and waiting till I get a successful response or the number of retries hits maximum. If the latter happened the job is marked as failed (STATUS\_ERROR) and removed from the queue. If I get a successful response, I check if the job is done. If yes, I download the PDB file and remove the job from the queue with STATUS\_SUCCESS. If the job is not done yet, I check if it exceeds the maximum waiting time (10 minutes). If yes, the job is marked with STATUS\_TIMEOUT and removed from the queue. Now I wait for 3 seconds and either check the status of the jobs in the queue again or (if a job was removed from the queue) go back to the paragraph above to refill the queue.

After I am done with processing all jobs (either with STATUS\_ERROR, STATUS\_SUCCESS or STATUS\_TIMEOUT), I go back to the jobs that received STATUS\_TIMEOUT and add them back to the queue one more time. Here too, the maximum number of jobs in the queue is 5 and the waiting on the queue works as described above. If the jobs have finished in the meantime, I download the PDB and mark them as STATUS\_SUCCESS. If they still have not finished, they retain STATUS\_TIMEOUT and are removed from the queue.

Hope this description and the diagram help to understand how I do the processing. If you have concerns regarding the timings/waiting times or other maximum configurations (jobs in queue, maximum waiting time) let me know.

Independent of using glycam.org or test.glycam.org I would start the process on a Friday evening hoping that it does not interfere to much with your regular business when running over the weekend.